INTERIOR DEPARTMENT APPROPRIATIONS FOR 1953

HEARINGS

BEFORE THE

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

EIGHTY-SECOND CONGRESS

SECOND SESSION

SUBCOMMITTEE ON INTERIOR DEPARTMENT

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PART 3

(BUREAU OF RECLAMATION)

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INTERIOR DEPARTMENT APPROPRIATIONS FOR 1953

TUESDAY, JANUARY 22, 1952.

BUREAU OF RECLAMATION

WITNESSES

MICHAEL W. STRAUS, COMMISSIONER
GOODRICH W. LINEWEAVER, ASSISTANT COMMISSIONER
KENNETH W. MARKWELL, ASSISTANT COMMISSIONER
ALFRED R. GOLZÉ, DIRECTOR, DIVISION OF PROGRAMS AND FINANCE
HARVEY F. McPHAIL, DIRECTOR, DIVISION OF POWER UTILIZATION
JOHN W. DIXON, DIRECTOR, DIVISION OF PROJECT PLANNING
E. D. EATON, DIRECTOR, DIVISION OF OPERATION AND MAINTENANCE
D. OTIS BEASLEY, DIRECTOR OF BUDGET AND FINANCE

Mr. KIRWAN. This morning we will begin consideration of the budget of the Bureau of Reclamation. The appropriation for this year was $234,408,522. The request for 1953 is $224,620,000, a reduction of $9,788,522. Mr. Straus, do you have a general statement to present to the committee? If so, we would be glad to hear it at this time.

GENERAL STATEMENT

Mr. STRAUS. Thank you, Mr. Chairman. Reclamation is glad to report again to your committee. This year I am before this committee in the privileged role of the Commissioner of Reclamation in the year of its golden jubilee. It will be exactly 50 years next June 17 that Reclamation acquired a statutory existence.

PAST ACCOMPLISHMENTS

Those 50 years have been exciting and wonderful years to the people of the West. It has been a half century of great accomplishments with new irrigation projects in all of the 17 Western States; 16 great power projects generate endless kilowatt-hours of energy; massive dams have been built on the Colorado, the Columbia, the Sacramento, and on the tributaries of the Missouri River, providing flood control as well as water for power and food. All those things this committee and its predecessor committees made possible during my tenure of office as Commissioner. I want everybody to realize that this committee got the country something tangible, of real and lasting value, for the reclamation investment it made. The direct assistance of the reclamation program to the successful conclusion of

World Wars I and II and its support of the present defense program cannot be measured in terms of money. But over $2 billion have been invested in reclamation by a Government with faith in its people.

I am proud to say that $1,552,901,929 of this amount has been provided chiefly by the present members of this committee here assembled today during my tenure in office as Commissioner. Reclamation has much for you to boast of in the 50 years drawing to a close. It has much to be concerned about the future prospects for the second half century which starts with the proposals now before you that this committee approves for fiscal year 1953. Before we go into the details of the estimates of fiscal year 1953, let me point out a few of the roadblocks and problems we share and face as we enter our second half century of service to this Nation.

INTERNATIONAL SITUATION REFLECTED IN ESTIMATES

The serious international situation which began a year ago last June and was reflected so compellingly in our 1952 appropriation again, as the President set forth in his budget message, dominates the estimates Reclamation supports which are now before this committee. The program is essentially one of retrenchment. The power program started after the conclusion of World War II moves toward completion in fiscal years 1953 and 1954. Irrigation remains a spotty activity, with work in many areas deferred.

There is a flurry of excitement in the flood-control field arising from the destructive floods of last summer in Kansas. The Congress last year provided funds for two new dams in the Missouri River Basin. One is in Kansas and the other up in North Dakota.

Congress also provided funds last year for the starting of the very important Palisades project on the Snake River in southern Idaho and rehabilitation of the little Vermejo project in New Mexico. These four projects represent only a small proportion of the needed work that should be undertaken.

PROGRAM DECLINING

Notwithstanding these additional projects of last year and the one new start included in the 1953 budget, the Bureau's program is declining at a rate all out of proportion to its value to the Western States. At first glance it would appear that the reclamation construction program for 1953, which at $214,124,807 is not much different from the construction program of $216,731,130 for this year, indicates a strong, healthy reclamation activity.

But reclamation has to be judged against the concept that it is a long-range program that produces acres and kilowatts in a continuous flow each year with some relation to the economic growth and defense needs of the area it serves. Unfortunately, that is not the case.

When you dig into the details of our estimates for next year you will find that the bulk of our money is going to finish up work that has been under way for some years now. It is true that not all the facilities will be in operation in 1953. Some will go into service in 1954, and a few others not until 1955 or 1956.

PROGRAM TO BE COMPLETED BY 1956

But, on the basis of our present schedules of construction, the Bureau will be essentially out of business by fiscal year 1956. We finish up our jobs. And, unless the new jobs which have been authorized by the Congress are undertaken—and this type of long-time investment cannot be undertaken sensibly in hurried panic—the pipeline that has brought the dynamic West new water, new food, and new hydroelectric energy to sustain its great development will run dry. There will be little or nothing in the line to come out in the closing years of this decade.

Reclamation is apprehensive that in this year of its golden jubilee the prospects for a good start in the second half century are so poor. You may recall my energetic demonstrations of the evils of "stop and go" financing of the reclamation program which almost paralyzed our activities several years ago. We are again in that situation, for we know that any new water, food, and electrical energy the growing West will get in 1957, 1958, and 1959 must come from works started next year.

We understand the needs of today's defense program. We energetically support it by working long days and many nights to be sure that reclamation's needed kilowatts and food for hungry workers will be there when we said it would be. But we know, too, that the Nation will continue to forge ahead regardless of wars, defense programs, depressions, and other assorted economic ups and downs which is our democratic way of life. As President Truman put it in his Economic Report to the Congress:

*** * * A nation of 155,000,000 people cannot survive on armament alone.**

Reclamation's one-fourth billion dollars for 1953 is less than one-half of 1 percent of the budget for Defense agencies. We are greatly concerned that the growing population of the West is being let down. This retrenchment of reclamation is not going to be noticed in fiscal year 1953 or 1954 while the works now under construction are being completed. But in 1956 and thereafter the great dearth in reclamation will mean drought when the Congress passed legislation authorizing water for the West. You or your successors will not be pleased or helped when I or my successor reports Reclamation "told you so" back in 1952.

FOREIGN CONSERVATION PROGRAMS GOING AHEAD

Members of Congress and this committee, in line with this global era, have been looking around the world some in the past year. I expect some of you have observed the same paradox that Reclamation has seen. We find that in nations like India, Pakistan, Thailand, and Chile the development of water resources through construction of large dams, irrigation systems, hydroelectric plants, many of which are being built with American funds in whole or in part, are being pushed rapidly ahead while the United States domestic program is retarded.

These foreign conservation programs have been endowed with a greater share of their country's economic budgets than ours. For example, in Mexico, our immediate neighbor, the funds assigned to

water-resource development approximates 10 percent of the annual budget. Mexico is no longer the small stepchild of the "south of the border" era, but is a full-fledged brother of democracy.

Contrast Mexico's 10 percent with the U. S. A.'s much less than one-half of 1 percent; contrast Mexico's population of 25,581,250 with the 17 Western States' population of 33,766,000. India, seeking to raise the standard of living for its 350,000,000 population, in the 3 years since partition has spent on reclamation as much as it spent in the previous century.

These countries are justifying their heavy budgets on exactly the same basis that we do. Without reclamation, their civilization would perish; without more reclamation they cannot grow and hold their place in the world of today. Please understand, I do not criticize these foreign programs, and Reclamation heartily supports the United States program of oversea aid to underdeveloped nations. They want, need, and are getting reclamation. But we do not like those skills we have developed to become an American commodity "for export only."

No man can foresee the shape of things to come. The defense requirements may exist for many years to come, with a corresponding high demand on the national income. This committee has the task of finding a way to support the reclamation development through this period so that the Nation does not restrict itself at home while resisting aggression abroad. Now for the details of what is in the 1953 budget for Reclamation.

REQUEST FOR 1953

The total appropriation request for fiscal year 1953 is $224,620,000. It is 4 percent less than was appropriated for 1952. There is before you the smallest appropriation estimate before your committee since fiscal year 1948. It is the factual representation of the declining reclamation program which I have just emphasized.

NEW START REQUESTED

Funds in the budget for "Construction and rehabilitation" total $194,720,000. The bulk of this money will go to financing work under active construction and nearing completion in fiscal year 1952. Only in the case of the Glen Elder Dam in Kansas are funds requested to start a new project. The general investigation program with $5,000,000 is financed to continue at about the same level as this year. The "Operation and maintenance" estimate of $19,000,000 is 19 percent greater than the 1952 appropriation reflecting placing completed facilities into service. Our "General Administrative expenses" total $5,500,000, but 2.4 percent of the total appropriation; and $400,000 for the "Emergency fund" completes the 1953 estimate picture.

NEW METHOD OT FINANCING

The method of financing the reclamation program for fiscal year 1953 comes to you on a new basis. Please recall that 2 years ago the Congress and the Appropriation Committees of both Houses approved the proposal of this for streamlining the Department of the Interior appropriation bill. This desirable action consolidated into four

lump-sum appropriations the 55 or more reclamation items in prior bills which constituted too many pocketbooks that we had heretofore been required to use in putting your money to work. The four consolidated items for reclamation were intended to facilitate their use in the accounting work, and reduce the needless shuffling of papers that had been handicapping our operations while specifically restricting expenditures to congressionally ratified work.

To maintain the integrity of the appropriations, the committee reports published tables to show how the Bureau was to allot the lump-sum appropriations such as the tables appearing on pages 9 and 10 of this committee's report last year. Reclamation through its program control has enforced the allocations and to my knowledge no project has ever received more funds than was intended by the final conference report or been deprived of funds which might be so properly utilized.

The Bureau of the Budget instructed us that in preparing the 1953 estimates now before you, we should take into account the unobligated balances of currently available construction funds that we anticipate will be available on June 30, 1952. Fulfillment of these instructions will work out like this. Our latest estimate of the unobligated balance of currently available construction funds that will probably be available next June 30, is $21,000,000. This estimate was made at the close of business on November 30 and is only an estimate. It may increase or decrease between now and June 30 because it reflects possible program delays largely arising from matters beyond our control.

Of this amount, $12,000,000 has been pooled and then it is proposed to allocate it to various projects all heretofore authorized by Congress and approved by this and the whole Appropriations Committee, supplementing the new funds we are requesting for those projects. The sum of the new money requested, plus the proposed allocation of unobligated balances, will finance the total program approved by the Bureau of the Budget.

Nine million dollars will remain with the projects to which they are presently allocated and will be expended on those same projects next year. The details of this realinement of anticipated unobligated balances will be submitted for your attention in a separate presentation. In addition, each project justification contains advice as to the method of financing showing any unobligated balances proposed to be transferred to it or from it.

I mention this in some detail because the reports of this committee and the Senate committee have shown the maximum amount of the lump-sum appropriation which it approved for allocation to each of the Bureau's projects and Missouri River Basin units. The transfer of $12,000,000 of unobligated balances between projects and units proposed for next year as a method of financing will have the effect of partially departing in the future from the allocations in the committee reports.

The proposal here submitted for your review is certainly legal as the lump-sum appropriation is technically available for any authorized construction work which has been cleared by the Congress. Expressed another way, your committee is asked to approve the concept that the lump-sum appropriation should be used interchangeably on the several reclamation projects and Missouri River Basin units to

the end that request for new funds from the Congress shall be reduced by taking funds from those projects or units which are behind schedule and applying the developed surplus to those projects which are on schedule.

The net effect is a saving of new funds to be appropriated by the Congress without sacrifice to approved construction schedules. It was to permit this saving and avoid making available and then sterilizing funds, while there was other approved work to do, that Congress approved the type of language in the bill several years ago.

STATUS OF MAJOR PROJECTS

While you have a retrenched reclamation program before you now, this committee will be glad to know that the $1,552,901,929 that we have received from the Congress since 1945 continues to bear fruit. I am happy today to report that power plants and irrigation facilities are being brought to completion and placed in service in a very satisfactory manner.

Outstanding has been the placing into operation of the multiple-purpose Central Valley project in California, long asked for by this committee. A number of Congressmen were present last August when the pumps were turned on at Tracy and the waters from the Sacramento began to move uphill for delivery to the San Joaquin Valley. Beginning with the irrigation season for this year, the backbone features of the project will deliver water to the numerous districts which have contracts with us for furnishing a gravity supply in place of the high-cost underground water they have been using and exhausting.

Our program on the distribution systems for the irrigated area in the San Joaquin Valley has been slowed down by rising costs beyond reclamation's control in today's economy. It is a problem we are working on with the irrigation districts. The Folsom power plant, being constructed concurrently with Folsom Dam being built by the Corps of Engineers, is on schedule. Its 162,000 kilowatts will be quickly sapped up by California's ever-rising kilowatt needs when the plant goes on the line in 1955.

On the Columbia Basin project in Washington, there will soon be a blowing of whistles and the sounding of horns to celebrate the initial delivery to the farms of water from the main pumping plant and regulating reservoir at Coulee Dam. The long anticipated irrigation of the Central Plain of the State of Washington will be under way this year.

For the Missouri River Basin program we are asking for $53,031,000 of new funds for fiscal year 1953 which, combined with carry-over, will give us a program of $60,634,129. From these figures it might appear that there is a program with a future under way in this area. From the detailed study of the estimates, it is apparent that the Missouri River Basin project will soon be completing work faster than new jobs are started.

The construction of new power plants is drawing to a close. The Kortes plant is on the line. The Boysen plant will be completed this summer. The Canyon Ferry power plant's kilowatts will be available in 1954. We have not been able to get funds to start the sorely needed Yellowtail power plant on the Big Horn River in Montana

and no other power plants are in prospect for early construction starts in this area.

Irrigation work in the Missouri River Basin has shrunk to that in progress along the Republican River—the Frenchman-Cambridge and Bostwick—with some small irrigation activity in South Dakota and Montana. All other irrigation development in the Missouri River Basin has been deferred. The ripple of interest in flood control has produced the Jamestown Dam in North Dakota, and the Kirwin Dam in Kansas, both financed by this committee late last year and the Glen Elder Dam on the Solomon River, proposed now as a new start for next year.

These dams, at best, represent only a few years' work. By 1956 the Missouri River Basin project, which started out so bravely just a short 10 years previously, will have ground to an unceremonious halt uncompleted—another defense casualty.

PUBLIC POWER SITUATION

The national power policy as written in legislation by the Congress has been continually examined and generally upheld by the Appropriation Committees. They did this by usually providing some funds for the construction of generating facilities, switchyards, and transmission lines to make federally generated power available to public bodies.

There has also been a continuing effort by the Bureau of Reclamation to comply with the intent of the Congress in the marketing of its electric power. In carrying out this intent, it has been established by the committee that, while reclamation should construct backbone transmission lines necessary to integrate its power plants to load centers, it should not unnecessarily duplicate transmission lines of other operating agencies which could be used to wheel Federal power beyond load centers to public bodies granted by law a priority claim.

Reclamation has many such wheeling contracts. During the past year, with the signing of a contract with the Pacific Gas & Electric Co., on terms heretofore denied the Government, the Bureau has concluded arrangements to wheel Federal power over private power company lines in Colorado, Montana, Idaho, North Dakota, South Dakota, and California. Negotiations are now in progress with three additional power companies in the Missouri Basin to wheel Federal power. We have for this committee a full and detailed report on all wheeling contracts which we will offer. We were not aided in our effort to attain the wheeling program advocated by this committee when the so-called Keating amendment, not recommended by this committee, was attached to the bill on the floor last year. We hope it will not be repeated.

POWER IN PACIFIC NORTHWEST

In the power short area in the Pacific Northwest, funds are sought in fiscal year 1953 to continue with Hungry Horse Dam and power plant in western Montana in order that power will be available at the earliest practicable date. The first unit will start up in October 1952 ahead of schedule with the total capacity of 285,000 kilowatts being on the line in November of 1953. Construction records were made on

Hungry Horse before winter subzero weather closed in. Also in the Pacific Northwest all possible speed will continue on the Palisades Dam and power plant in Idaho in order to have power from it available in October 1956.

The last two major power plants on the Colorado-Big Thompson project in Colorado, Pole Hill, and Flatiron, will be completed and placed on the line in fiscal year 1953.

In the Missouri River Basin agreement has been reached with 16 REA cooperatives and three private utilities operating in western Minnesota for the construction by the Bureau of the main 230-kilovolt backbone grid system to serve this area, and funds are being requested in fiscal year 1953 to initiate construction. This network is geared to the generation dates of the power plants at the Army dams on the main stem of the Missouri River. Also in the Missouri Basin, Boysen power plant in Wyoming will be completed and placed on the line. This will add 15,000 kilowatts in the power short area of western Wyoming.

In Alaska we are going full speed ahead on the Eklutna project to bring electric energy as soon as possible to the power deficient Anchorage area. The tunnel is under contract and making good progress. The generators and turbines have been contracted for manufacture and we seek to meet the scheduled date of 1955 for placing 30,000 kilowatt on the line in this critical defense area.

The budget makes provision for a transmission line intertie from the Central Valley project in northern California to the Bonneville Power Administration in southern Oregon. The budget also contains a commitment for a supplemental appropriation for $8,000,000 for the Hells Canyon Dam on the Snake River in Idaho, when the project is authorized by legislation now before Congress. It will bring real relief to the tight power situation in the Pacific Northwest.

PERSONAL SERVICES

The personal services item in the budget of a number of the civilian Government agencies were restricted by Congress at the last session by two amendments attached to appropriation bills. For the Bureau of Reclamation, as a whole, the compliance with the House amendment restricting replacements of staff was secured relatively early in the fiscal year.

The other amendment, known as the personal services limitation, sponsored by Senator Ferguson, placed a dollar limitation in the appropriation text on the money that may be spent for that purpose from the current appropriation.

The Bureau has conformed three of its appropriations to this limitation and expects to be in compliance with the limitation applicable to its construction work before the end of the year as required. Both limitations have resulted in establishment of much paper work in allocating the limitation to the various bureau offices and securing reporting from those offices to insure the necessary compliance. These amendments have lowered morale and delivered no acre-feet of water or kilowatts of power.

For your information, the employment of the Bureau as it went into fiscal year 1952 was 16,836, a reduction of 2,425 from peak employment of June 1950. As of December 22 employment was down

another 2,873 persons from July 1, 1951, level to 13,963. Altogether, the Bureau's employment has decreased 5,298 from its June 1950 peak of 19,261 paid employees during the past year and a half, equivalent to a reduction of 27.5 percent, in pace with the decreasing programs.

If Congress ratifies the reclamation program before you, I do not expect the total employment to vary much in the next 18 months. I know cutting Federal employment pay rolls is a popular sport, but it makes little sense to liquidate America's great Reclamation organization. Their skills are in great demand everywhere and we cannot meet the demand for Reclamation personnel overseas and frequently paid for by the United States but not with reclamation funds appropriated in this bill.

Just to bring it home to you, please note that two familiar faces of men who enjoyed your confidence for some 10 years are missing from this side of the table. William E. Warne, long-time Assistant Commissioner and later Assistant Secretary, is now doing reclamation in Iran; and Wesley R. Nelson, Assistant Commissioner, will soon be in Iraq, at a substantial increase in salary. They are good men doing good work in the Middle East. Too bad they no longer serve our 17 Western States.

PRIORITY SITUATION

Priority troubles are with us as usual, the same as for all construction agencies, both public and private. We have been measurably assisted by Defense Electric Power Administration, who is responsible for securing the necessary allocation of material to maintain the Bureau power program on schedule. There have been some delays due to the inability to place orders.

POWER GENERATION

One of the realistic accurate measures of Reclamation's achievement is the number of kilowatts generated. For the 12 months ending on December 30, the power plants on Reclamation's projects generated 23,000,000,000 kilowatt-hours. This tremendous output of electrical energy, which brought the Government a cash revenue of about $40 million, was utilized to turn the wheels for defense factories throughout the Western States, light the homes of farm and city worker alike, pump the irrigation water, operate the mines and support the military agencies engaged in defense work.

AREA UNDER IRRIGATION

Irrigation water was available for 6¼ million acres during the 1951 crop season. From those acres came 16 million tons of food and fiber, valued at $654,000,000. Included were alfalfa to feed the livestock destined to become the beef steaks and roasts on dining room tables throughout the country; specialty crops of winter vegetables, grapes, melons, dates, nuts, and the like from California and the Southwestern States; a large production of cotton fiber, and the backbone cash crops of potatoes and sugar beets, which are the end result of reclamation's feeding large populations which must eat.

The first half century closes with the cumulative value of reclamation-produced crops registered at $7.8 billion, which more than triples the total Federal reclamation investment.

LANGUAGE CHANGE

The budget before you for the fiscal year 1953 includes new language in the bill that would stop a part of reclamation and delay more if enacted. It would require the execution of repayment contracts before any funds in this bill could be used for construction on the reclamation projects or any major feature thereof, now under way or proposed.

REPAYMENT CONTRACTS REQUIRED

Existing reclamation law has consistently required the execution of repayment contracts before the delivery of water except on public land areas. The Omnibus Adjustment Act of 1926 contains the basic provision for the prior execution of repayment contracts before the delivery of water. This was confirmed by the enactment of the Reclamation Project Act of 1939.

Both acts permit construction to proceed pending the execution of the repayment contracts, with water deliveries after completion contingent on execution of the contracts which were uniformly forthcoming. It is difficult to develop the complete detail of a repayment contract, a document which will greatly influence a district's financial affairs for 40 years more or less, until the project is completely designed and under construction so that reliable cost figures are available and the customers can know and see what they are getting for their money.

To protect the Government's interests, it has been my policy since I have been Commissioner to require the best guaranty possible from each irrigation district or association certifying that it would repay the cost of the project. In many cases we have obtained a contract before starting work and always before delivering water. Over the years Members of Congress have criticized me far more often for driving too hard a bargain with irrigators than being too easy.

To my knowledge, the provisions of existing law have worked generally satisfactorily. There are outstanding repayment contracts of a face value of $522,000,214 on which repayment to June 30, 1951, totals $93,094,813.

If the language in this bill had been in earlier legislation, you and the country would not have the Central Valley project, the Columbia Basin project, the Missouri Basin project, and many other developments today. It is up to you to decide if you want to change the basic ground rules of Reclamation after its first half century but I am responsible for making sure you know just what you are doing. If you adopt this language, it will make life lots easier for myself and Reclamation—we'll have lots less work to do.

FOREIGN ACTIVITIES

The demand for services of Bureau of Reclamation technical experts and the use of Bureau facilities for training engineers from other countries continues to increase with the increased recognition being

given to Reclamation by foreign nations. Financed with funds from other Government agencies and with advances from the countries concerned, the Bureau now has a major activity in the foreign service field.

During the calendar year 1951, the Bureau of Reclamation rendered technical assistance abroad to 22 countries. To carry on this work, funds were transferred or allotted to the Bureau of Relcamation from all sources, amounting to $1,014,000. During the calendar year 1951, the Bureau of Reclamation performed training services for foreign engineers from 36 countries. The amount of money transferred or allotted to the Bureau for this purpose from all sources was $145,500.

During the calendar year 1951, the Bureau of Reclamation performed engineering services for eight countries. The funds transferred or allotted to the Bureau for this purpose amounted to $60,800.

INVESTIGATION PROGRAM

The investigation program of the Bureau of Reclamation is one process of accumulating the basic data on which the Congress passes its judgment as to whether a reclamation project should be authorized and funds appropriated for its construction. The number of investigation reports that will be completed in fiscal year 1953 will be smaller and Congress will have less of the information needed for the selection of the best projects for resumption of a normal reclamation program in a happier day.

There is only so much water left in the Western States which has not been beneficially applied. The Government and the States concerned need to know the best places to use those waters to obtain the maximum benefits for the growing population. Investigation reports of maximum interest to this committee will be reported on in these hearings.

OPERATION AND MAINTENANCE

The cost of operation and maintenance of the Bureau's facilities will continue to increase as new facilities are constantly being placed in service. These costs, however, are repaid for by the irrigators each year so that the effect on Treasury balances is negligible even if they appear annually in appropriation bills.

On the irrigation side, there will be operated by the Government in the fiscal year 1953, 17 irrigation projects, irrigation facilities on 14 multiple-purpose projects, and 13 Missouri River Basin units. It is our policy to turn over to the water users those segments of irrigation-distribution systems which they can manage for themselves. We have just turned over, for example, the irrigation-canal system comprising the Owyhee project in eastern Oregon and western Idaho. In 1953 the water users will operate 58 projects or divisions of projects at their own expense without reference to the Bureau. Sometimes, however, there are circumstances that cause irrigators to insist Reclamation operate.

The Bureau's standards of maintenance for its power system compare favorably to those of the outstanding power utilities, both public and private. The steady increase in generator units in the Bureau's plants has increased the Bureau's responsibilities. The transmission-

line network to load centers has a mileage of 8,800 in fiscal year 1953. The wheeling of power over the lines of private utilities involves dispatching arrangements and substation adjustments. It all adds up to the need for a topflight engineering organization which the Bureau now has and must be continued.

The future prospects of Reclamation could certainly be improved, but this record would show that Reclamation will be busy, quite busy in fiscal year 1953. My staff is here to answer your questions, furnish the data you may request, and otherwise be of maximum service to you gentlemen of the committee.

I would like to answer any questions that the committee sees fit to ask me, and I will be available at all times. It is our purpose to present to the committee as conveniently as possible all the information which is desired. I would like that to conclude my opening statement, Mr. Chairman.

Mr. KIRWAN. We enjoyed your statement. It was very clear and well presented. The gentlemen of the committee will ask some general questions on Mr. Straus' statement; and after we do that, when we resume, we will take each project one at a time.

NEW START REQUESTED

According to your statement there is one new start in the program, the Glen Elder project on the Solomon River. That project is needed to help prevent another flood like the one this year in the Kansas-Missouri area; is it not?

Mr. STRAUS. Yes, Mr. Chairman. The Glen Elder project on the Solomon River is designed to catch and hold water from the area that had great losses in the floods of last year.

Mr. KIRWAN. Will any projects already in the construction stages be stopped because of the reductions in your appropriations request?

Mr. STRAUS. No, sir; not in the construction stages. Work will continue on all projects under construction if the committee allows the funds before it in the present budget.

PRODUCTION LOST THROUGH CURTAILING NEW STARTS

Mr. KIRWAN. What potential production from irrigated lands will be lost to America if we continue the policy against new starts?

Mr. STRAUS. If that is a question of degree, we are now producing a little over $600,000,000 worth of food each year on Federal reclamation projects, and the total yield as accumulated for the half century has been about $7,800,000,000. It depends upon how long the rule against new starts continues.

The potential of water that can be delivered for irrigation purposes in the West is about as much again under existing standards as has already been irrigated.

Mr. LINEWEAVER. Mr. Chairman, we would like to submit for the record a more detailed statement on that in response to that question We have some information on that that we will put in the record.

Mr. KIRWAN. All right.

(The information referred to is as follows:)

Food and Fiber Production From Irrigation

Since the first crop was marketed in 1906, essential foods and fiber having a cumulative value of over $7.8 billion have been produced with either full or supplemental irrigation water supplies developed by the Bureau of Reclamation. Preliminary estimates for the 1951 crop year place value of the crop grown on the 6¼ million irrigable acres under Bureau constructed irrigation works at $654 million and its volume at over 16 million tons. On the average, each irrigable acre under project canals contributed 2.6 tons of important food and fiber crops plus valuable pasturage and crop residues to the Nation's agricultural supplies.

Reclamation's contribution to the American standard of living, however, is measured best in terms of the kinds of crops grown rather than the tonnage or value of those crops. Traditionally, a high percentage of the total crop produced on reclamation projects is made up of the choice fruits, nuts, and vegetables that grace our dining tables and balance our diet to make us the best-fed nation on earth.

The significance of western irrigation in this field is demonstrated by the production record of the Mountain and Pacific States. These States produced virtually all of the Nation's apricots, English walnuts, almonds, dates, lemons, figs, prunes, and olives, nearly 95 percent of the grapes, over 90 percent of the lettuce and sweet cherries, 75 percent of the avocados, pears, and cantaloups, over half of the peaches, and nearly half of the commercial truck crops. Many of these are classed by our dietitians as "protective foods." Some come almost exclusively from reclamation projects. Last year's production accounted for around 6 million tons of the United States total.

When the projects now under construction are completed, an additional 2,200,000 acres will be provided with either a full or supplemental irrigation water supply. This acreage will add an estimated 5.7 million tons of strategic food and fiber to our national supply.

Projects involving an additional 668,000 acres have been authorized but not started. When these projects are finally built, an annual production of 1.8 million tons will be added.

In terms of current engineering standards and economic limitations, there remains an additional 18 to 20 million acres of land now either inadequately watered or being used for grazing or other unintensive agricultural use which is capable of producing high yields under irrigation. This acreage if irrigated could conceivably add an additional 45 to 50 million tons of food to our present supplies. Water and land over and above these figures will still be available to swell food production when and if changing standards of economic and engineering feasibility warrant such development.

At the turn of the century, United States population was slightly under 76 million and the population of the 17 Western States a little over 11 million. By 1920, United States population had increased to about 106 million persons, while the population of the 17 Western States had grown to approximately 20 million. The last census revealed that United States population had increasesd to over 150.5 million people and the population of the West had increased to 33.8 million people. Throughout the first half of the twentieth century, the most rapid population increases in the Nation were recorded in the three Pacific Coast States. At the beginning of the century, fewer than 2.5 million people occupied this area which today contains nearly 14.4 million. If present trends are projected to the year 1975, an additional 40 million chairs will surround the Nation's dinner table and as many as 15 million of these chairs will be located in the West.

Cast against this background of accelerated population increases is the sobering fact that since 1920 the Nation's productive agricultural plant has not changed substantially in size and the increases in total food supply available have come from the reduction in export trade, the reduction in cotton acreage, and the conversion from horse-drawn to mechanized equipment, and the utilization of the acreage previously dedicated to these uses for the production of domestically consumed food and fibers. Intensification has also played a dramatic role and the American farmer is getting more from his acreage than he did 30 years ago.

The increased food and fiber needed to meet the domestic requirements will come from a variety of sources. However, if we are to remain the world's best-fed nation and if existing dietary inadequacies are to be corrected, irrigation development must be accelerated.

LOCATION OF DEFENSE ACTIVITIES IN WEST

Mr. KIRWAN. Is there a continuing trend of locating more and more defense activities in the 17 Western States?

Mr. STRAUS. There is a continuing location of more and more defense activities in the Reclamation States, which brings on the Bureau of Reclamation constantly increasing, and in some cases skyrocketing, demands, both for kilowatts and for food as the population and industry moves in that direction.

You may have a further statement on that, Mr. Lineweaver?

Mr. LINEWEAVER. We will have a statement showing the location of the defense activities now in operation, or contemplated, so far as the Defense Department has given it out; and also a statement on population increases in the 17 Western States.

(The statement referred to is as follows:)

In response to the chairman's question of Commissioner Straus, the following information is given with respect to the trend in relation to the location of defense activities in the 17 Western States.

During World War II in the Pacific Coast States and in the Intermountain States, as well as in States of the Missouri Basin area, Oklahoma, and Texas, the Army, Navy, and Air Force located a number of important installations. Most of these installations were in the vicinity of reclamation projects where power and water could be made available for irrigation or municipal purposes from Reclamation facilities. Following the cessation of hostilities after VE- and VJ-days, many of these installations were placed in an inactive status and in several instances the defense facilities were turned over to the Bureau of Reclamation or other agencies. With the advent of the Korean situation, some of the installations were reactivated and expanded by the Defense Department. The requests for water and power service from reclamation projects have been expanded as a result of the reactivation of the defense installations. The Bureau of Reclamation is not in a position to reveal at this time inquiries which have been received from the defense agencies with respect to further expansion in any given area. The trend, however, has been toward locating more and more defense activities in the 17 Western States.

The tremendous power demands of the atomic engery installation and the new aluminum plants are being met by continued expansion of hydroelectric and fuel generator plants in the Western States. The heavy demands for defense limits the availability of power for civilian needs to a continuous minimum.

TRENDS IN THE INDUSTRIALIZATION OF THE WEST

The phenomenal increase in western population clearly indicates the economic maturing of that vast area which a century ago was little more than the domain of cowboys, trappers, and Indians. The rate at which this process is being accomplished is recorded in the last census which established the West as the most rapidly growing section of the Nation. Expressed in terms of the percentage increase of 1950 over 1940, the 17 Western States gained 24.9 percent, the 11 Mountain and Pacific States 39.8 percent, and the 3 Pacific States 47.5 percent, while United States population increased by only 14.3 percent. The West is growing up and in the process is assuming more than ever a position of vast strategic importance in the Nation's future.

People and their working allies, water and power, have accomplished a momentous work during the past century in unlocking the vast western potential, but the process of securing rich returns of that area is only begun. The wealth originally associated with the West came largely from the pastoral arts and from the mines and forests. With water conservation, abundant production of choice, intensively cropped fruits, nuts, and vegetables and the magic of reliable, low-cut hydroelectric power have been added to balance the economy of a new and dynamic West.

The industrial growth of the Pacific Northwest, for example, was stimulated by the hydroelectric production of Bonneville and Coulee Dams. The availability of water for agriculture and industry and electric power started a self-energizing cycle in that area. The vast power production of Bonneville and Grand Coulee

was soon fully utilized by aluminum manufacturers, the Atomic Energy Commission, and other essential producers. Once Grand Coulee Dam was spoken of with derision as the "Great White Elephant of the Bureau of Reclamation." Now it has gone through its ugly duckling act and has emerged as the great keystone of a vast fresh new industrial area.

The growth in power demand is indicated by electrical energy sales. In 1940 sales amounted to a little over 1 billion kilowatt-hours. In 1943 sales were nearly 5.3 billion kilowatt-hours, in 1944, 8.7 billion. With the end of hostilities, the demand slackened in 1946 to 5.8 billion only to start a climb that topped 15 billion kilowatt-hours in 1951. Known future expansion will add a demand for double existing output before 1960 and the end is not in sight.

The experience of the Northwest follows earlier experience in California. The water conservation and power generation features built by the Bureau of Reclamation along the Colorado have made possible the marvelous agricultural and industrial attainment of southern California. Once testimony was introduced to discourage appropriations for Colorado River works on the grounds that the power generation facilities were greater than the needs of the service area. Now in spite of unprecedented public and private power plant construction, California remains a power deficit area. In one relatively compact service area in California, 17 military installations are grouped and the industrial production of California's varied plants is of incalculable value to the Nation's defense effort.

The resources of the Colorado are by no means tapped. The upper Colorado Basin, for example, contains known oil shale deposits estimated to yield 520 billion barrels of precious oil. Seventeen percent of the world's coal reserves is located there too. Substantial portions of the Nation's chromium, vanadium, uranium, magnesium, iron, and other essentials of the atomic age are found in the same area. These vast resources will be made available for the benefit of the Nation only when the water and power resources of the West are harnessed and made to work for the Nation in the production of food, fiber, and reliable low-cost electrical power.

Work is being rushed ahead of schedule at the Bureau's Hungry Horse Dam and the first generator will go on the line this coming year to accelerate the industry of a great new empire in Montana for the Nation's defense program. Other power plants are being constructed by public and by private agencies throughout the West in an attempt to meet the growing needs for power. In the Bureau of Reclamation alone, generators with a nameplate rating of 4,021,700 kilowatts are now producing in excess of rated capacity in an effort to meet demands, and work is under way to place an additional 2,477,650 kilowatts on the line between now and the time currently authorized projects are completed.

ABILITY TO EXPAND POWER PRODUCTION

Mr. KIRWAN. If we were in war in 1956, would we be able to quickly expand our power production in the West, if that becomes necessary?

Mr. STRAUS. We would not be able to under the reclamation program as now before this committee. We would not be able to do as good a job on it as we did in the last war, when at the beginning of the war we had a number of major dams well under construction and power seats in those hydro dams ready for generators. We filled up those spaces.

Mr. LINEWEAVER. We would like to show there, Mr. Chairman, just what we could do if we were provided with the program or the funds to care for the program.

WHEELING CONTRACT DIFFICULTIES

Mr. KIRWAN. Are you having any difficulty working up wheeling contracts anywhere?

Mr. STRAUS. We have obtained wheeling contracts with some difficulty in many instances in several States. That just about covers the opportunity of obtaining such contracts. We have secured those contracts. They are in effect now. We are wheeling for utilities and

utilities are wheeling for us. We have effective wheeling contracts now in the States of Colorado, Montana, Idaho, North Dakota, South Dakota, and California; and in several of those States with more than one utility, and we wheel for them also.

Mr. KIRWAN. There is a friendly feeling, then, between one another?

Mr. STRAUS. I think that the wheeling contracts are working well.

Mr. KIRWAN. But the feeling?

Mr. STRAUS. The feeling? I think it is accepted by both sides. It is accepted by us. We were embarrassed by the Keating amendment, which is something extra, new and added, not recommended by this committee last year, that came after the wheeling policy of this committee and the Congress, which is followed by the Bureau of Reclamation.

UNEXPENDED BALANCE

Mr. KIRWAN. How much unexpended money do you have in the Treasury to your credit at this time?

Mr. STRAUS. I will get that figure for you. Have you got that figure, Mr. Golzé?

Mr. GOLZÉ. We will have to supply the precise figure.

(The information referred to is as follows:)

The unexpended balance of funds available to the Bureau of Reclamation as of December 31, 1951, was $216,929,458.

ONE NEW PROJECT

Mr. NORRELL. I believe you stated, Mr. Commissioner, in your general statement that you had one new project that you have a budget estimate for in the existing bill?

Mr. STRAUS. That is correct. There is one new construction start in the budget before you, Mr. Norrell.

DEFINITION OF NEW START

Mr. NORRELL. I have never gotten clear—and I want to be frank with you; I am not interested personally in what necessarily constitutes a new project in reclamation, but I am interested personally in what constitutes a new project in flood control, rivers, and harbors; and I have never been able to get fixed in my mind how you define a new project.

I do not want you to encumber the record, but I do wish you would tell me what you understand to be the strait-jacket that a project has to be in to be classified as a new project.

Mr. STRAUS. We are saved that trouble as a rule, Mr. Norrell. The Bureau of the Budget defines a new start for us. In the case that is before you, the new start is a development in the Missouri Basin which may not be considered as one project, but this is funds for a new construction start at a site for a dam largely for immediate flood-control purposes which has not had any construction funds provided heretofore by any budget or by action of this committee.

Mr. NORRELL. Has the Bureau of the Budget made a formal definition of a new project?

Mr. STRAUS. I do not recall.

Mr. NORRELL. I understand from the Assistant Secretary that it has. Would you mind getting a copy of that and inserting it in the record?

Mr. STRAUS. I would be pleased to.

Mr. NORRELL. I am not questioning any project you have in reclamation. I am just interested in knowing how you determine what is a new project.

Mr. STRAUS. We are following the Bureau of the Budget's definition of what is a new construction start. Just historically you may recall that this committee did not agree with that definition in the case of the Yakima-Kennewick.

Mr. NORRELL. You have the definition of the Bureau of the Budget. I think we ought to have that.

Mr. STRAUS. We will place it in the record.

(The information referred to is as follows:)

EXTRACT FROM BUREAU OF THE BUDGET INSTRUCTIONS FOR PREPARATION OF BUDGET ESTIMATES RELATED TO "NEW PROJECTS" (SYNONYMOUS TO "NEW STARTS")

Section 85. Public works and improvement programs:

"* * * A 'project' is defined as an integral physical unit or feature, such as a structure, a building, a dam, a tunnel, a generator, a transmission line, a usable section of canal, levee, channel improvement, or road, an erosion-control operation within a specified area, or any other distinct item which can be used for the purpose intended. Generally, those units of public-works developments which can be separated into individual features shall be considered as separate projects.

"An 'authorized project' is one which has been approved by the Congress either in general or specifically under existing legislation and may be either a 'continuing' or 'new' project. A 'continuing project' is defined as one for which appropriations or contract or loan authorizations have been provided specifically for construction (as distinguished from preliminary and preconstruction work) prior to the budget year, and for the completion of which additional appropriations, contract or loan authorizations, or expenditures are required in the current fiscal year or thereafter. A 'new project' is one for which no appropriations or contract or loan authorizations have been provided specifically for construction (as distinguished from preliminary and preconstruction work) prior to the budget year. A 'project not yet authorized' is one which has not been approved by the Congress either through general basic legislation or specific legislation. * * *"

USE OF UNEXPENDED FUNDS

Mr. NORRELL. You mentioned a while ago about lumping your unexpended or unallocated sums together and disbursing it in a certain way. Do I understand from this that the money that has been unused which we have appropriated heretofore, small sums here and yonder, would be utilized by the Bureau of Reclamation in starting projects or in continuing projects that you receive money for or that have been authorized?

Mr. STRAUS. Within certain very specific limitations: No. 1, all those funds would not be available for that purpose. No. 2, none of those funds would be available for projects that Congress had not heretofore provided funds to carry on.

Mr. NORRELL. You mean construction money?

Mr. STRAUS. Construction funds; yes, sir. No. 3, only after the approval of Congress and this committee; and at these hearings there will be laid before you specifically each dollar that might be so treated for your approval.

Did you want to add something to that, Mr. Lineweaver?

Mr. LINEWEAVER. Yes. I would just like to say this, Mr. Norrell. It is not a free-wheeling device for the Bureau or the Department to do this. Under this program submitted, that the Commissioner discussed, we are submitting it to the committee on the basis of the Budget Bureau's recommendation, and the committee must approve it before we can go ahead.

Mr. NORRELL. What is the difference, then, in the way we would handle that and in appropriating new money?

Mr. STRAUS. There is no difference in the review, determination, and approval before any such action by this committee. The difference is that the total of new funds appropriated would be less to the extent that these prior appropriated funds are used. That will reduce the total amount of the new appropriation that is before or is made by this committee, if the committee approves.

Mr. NORRELL. Is that the only advantage?

Mr. STRAUS. The corollary advantage is that we are enabled to do more of the work that has heretofore been approved, authorized, and financed by the Congress without appropriating new moneys.

Mr. NORRELL. How much did you say was the existing balance in this prospective fund as of November 30, 1951?

Mr. STRAUS. November 30, $21,000,000. Is that the figure?

Mr. GOLZÉ. That is the estimate of the unobligated balance that will be available next June 30, Mr. Norrell.

Mr. STRAUS. It is proposed, however, that only $12,000,000 of this money be submitted to this committee for reallocation.

Mr. NORRELL. Isn't that more or less the same procedure the military uses with money that is appropriated to them? They have, say, $1,000,000 for a certain item, and they decide later that they do not need it. They come back to the committee and say, "We would like to spend this money—$500,000 somewhere else and $250,000 somewhere else and the balance for such-and-such a thing." If the committee approves it, they go ahead and do it.

Mr. STRAUS. I am not entirely familiar with the military procedure, but from your description I would say it is entirely similar, Mr. Norrell.

WHEELING CONTRACTS

Mr. NORRELL. Have your wheeling contracts, Mr. Straus, been reasonably satisfactory to the reclamation service?

Mr. STRAUS. Yes; I believe that they have been. In instances where wheeling is available, they have been satisfactory in the sense that they permitted us to get reclamation power to certain areas that demanded that power where other lines existed that were willing to wheel our power without our building additional lines.

They do not solve our entire problem, of course, because in many instances there are no lines in existence over which we may wheel to market areas.

Mr. NORRELL. Have you found it unnecessary to continue the transmission lines like you used to when you had no wheeling contracts? Have you found that you can cut down your transmission costs in that way?

Mr. STRAUS. To the extent that we are able to get our power wheeled at reasonable traffic rates over existing lines, we have found it un-

necessary to build any new lines. I want you to recall—I am sure you will—that we have been in the wheeling business for 15 or 20 years; have we not, Mr. McPhail?

Mr. McPHAIL. Twenty-five years.

Mr. STRAUS. Twenty-five years, both wheeling for utilities and having our power wheeled by utilities.

Mr. NORRELL. It can be said you are the granddaddy then and not the daddy of wheeling contracts.

Mr. STRAUS. I think that that would be a fair statement in the case of the Bureau of Reclamation.

EFFECT OF WHEELING CONTRACT

Mr. NORRELL. Say that we have a power company that enters into a wheeling contract with the Southwestern Power Administration, and they agree to supply power in any of its area—and by the area I mean where they have a certificate of convenience to do business within that area.

When that contract is entered into and fully negotiated, with them agreeing to deliver power at any point in this area for the same rate, can the power company decide to charge a lower rate to some industry in some remote section of the area in which this power company is doing business than the wheeling contract provides?

Mr. STRAUS. You have got me a little out of my field, because I am not familiar with the details of the Southwestern Power Administration.

Mr. NORRELL. Throughout the Nation; that is what I want to know.

Mr. STRAUS. Let me respond to it in this way in the case of the Bureau of Reclamation power contracts specifically. Were the utilities to deliver our kilowatts that they wheel at a lesser rate than some other kilowatts, I know of nothing in our contracts that would prohibit that, which, of course, are subject to various types of State regulation and other regulation. May I inquire of Mr. McPhail if that is correct.

Mr. McPHAIL. That is correct, Mr. Commissioner. I might also say, Mr. Norrell, that, even though we have wheeling contracts, if there are peculiar circumstances surrounding the service to one load that would indicate that the rate under the wheeling contract is too high, we have consistently sought changes in that rate to get a rate that is more consistent with the facilities used. We have been successful in some instances in doing that.

RATE CHANGES UNDER WHEELING CONTRACTS

Mr. NORRELL. Say you have a wheeling contract with the power company out there in the Central Valley.

Mr. STRAUS. Pacific Gas & Electric Co.

Mr. NORRELL. The private company agrees to deliver power at a certain rate, we will say, around San Francisco. My point is this: When they agree to deliver power in that area for a certain rate and they negotiate a contract to that effect, can the Pacific Gas & Electric Co. later decide, "Well, now, here is one industry over here in this area"—we will say a little town close to San Francisco. "I am going

to give them a favored rate, knock off one-tenth of a mill or one-fifth of a mill." Can they make a more favorable rate to that one industry than the other industry? Is that possible?

Mr. McPHAIL. In the case of Pacific Gas & Electric Co., Mr. Norrell, it would be subject to the approval of the Utility Commission of California. If the utility commission agreed, the company could do it.

Mr. NORRELL. I am going to have to get down to my State. I do not know whether there is anybody here that can answer this question or not. But you have under consideration, we will say, the negotiation of a contract in the Southwest, which includes Arkansas. The rate in the contract will be fixed in a certain area. The rate, I understand, in the contract is fixed to be the same throughout that area. The rate in one area is the same as another anywhere.

I am not objecting to the contract. It is all right as far as I know. But I did want to know if, after this contract is executed—if it is executed—whether the power company could then come in and charge a concern somewhere in the area a lesser rate than was fixed by that contract?

Mr. McPHAIL. I think, Mr. Norrell, that perhaps the companies in general would not have any means to do that if the contract with the final customer is between the United States and the customer, where the United States has a separate wheeling contract with the power company for wheeling the power, the payment to the power company would be by the Federal Government for the service rendered, and we would collect from our own customers, the Bureau at least, whatever our going rate was.

Mr. NORRELL. I still do not get exactly what I am after. If a wheeling contract is executed between the Arkansas Power & Light Co. and the Southwestern Power Administration, and the rate is fixed throughout a certain area and the rate is the same, can the Arkansas Power & Light Co. under that contract then charge a lower rate, say, for the Aluminum Co. of America, or any other company, than is fixed by contract to these individual industries?

Mr. McPHAIL. I do not know, except my illustration that if the United States has a contract with the Aluminum Co., then probably the contract would involve the United States paying to Arkansas Power & Light Co. the amount for the transmission, which would be a direct relationship between Arkansas Power & Light and the Government.

NEW START REQUESTED

Mr. JACKSON. The only new start is this project in Kansas, Glen Elder Dam?

Mr. STRAUS. Glen Elder Dam on the Solomon River.

Mr. JACKSON. Will it produce any power?

Mr. STRAUS. No; it will not as presently planned.

Mr. JACKSON. What is the total cost of that project?

Mr. LINEWEAVER. About $40,000,000.

Mr. JACKSON. How much do you have in the budget for it?

Mr. LINEWEAVER. A little over $3,000,000.

Mr. JACKSON. And the urgency of that project is the recent flood?

Mr. STRAUS. Yes; it is related directly to the recent flood of the Kansas River, and the Solomon is a tributary of the Kansas River.

Mr. JACKSON. The Kansas flows into the Missouri?

Mr. STRAUS. Yes, sir. It is immediately above the serious flood-devastated area of last year.

Mr. JACKSON. Is it anticipated that this dam will hold back a lot of floodwaters?

Mr. STRAUS. Yes, it will be operated as a major flood-control dam.

PREVIOUS ACTION ON GLEN ELDER DAM

Mr. JACKSON. Has this project been submitted previously at any time?

Mr. LINEWEAVER. Yes, sir. It was in 1947. In 1947 the President sent it up with the emergency projects following the flood of 1947.

Mr. JACKSON. And it was turned down?

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. Is this one of the areas where there is a lot of controversy about flooding a lot of land?

Mr. LINEWEAVER. With respect to Glen Elder, Mr. Jackson, so far we have not had a controversy about it probably because it is just being known that now Glen Elder is being recommended. In 1947 there were no complaints when the Budget Bureau set up the estimate for Glen Elder and four or five other projects.

Mr. JACKSON. It was in the Missouri Basin program?

Mr. STRAUS. Yes, sir. It was in the emergency program in 1947. They sent up five dams, of which the Congress made appropriations for two in this particular area.

Mr. JACKSON. Was there not some objection from the Kansas delegation to something about that dam a while back?

Mr. LINEWEAVER. Probably you have in mind Tuttle Creek, which is authorized for construction by the Corps of Engineers. There was quite a controversy over that in last year's civil functions bill. The House committee knocked it out. The Senate put it back, and there was quite a lengthy controversy in the conference committee. We understand it was finally eliminated from construction funds, but planning funds were provided the corps.

Mr. JACKSON. What was the basis on which this dam was eliminated in 1947?

Mr. LINEWEAVER. By the Congress?

Mr. JACKSON. Yes.

Mr. LINEWEAVER. My recollection is that the House committee went through a selective operation and put in Cedar Bluff in Kansas, only one of the four or five projects that were recommended in Kansas. What the basis for the elimination of the others was, we were not advised.

NEW STARTS REQUESTED OF BUREAU OF THE BUDGET

Mr. JACKSON. What other new starts did you request of the Bureau? Do you have those?

Mr. STRAUS. There is a list available.

Mr. LINEWEAVER. We have a list, Mr. Jackson, of some 15 or 20 which were in the original list, including certain phases of projects like the Colorado-Big Thompson; and then there were 6 or 7 that the Secretary specifically recommended in the final go-round.

Mr. JACKSON. Put them all in the record. Do you have the six or seven? Can you read those at this time?

Mr. LINEWEAVER. The six on which the Secretary put particular emphasis were the Solano project in California, or the Sly Park division of the Central Valley project; Yellowtail in Montana, which is a power project and will provide river regulation and irrigation; Webster Dam in Kansas, which was recommended by the Bureau and the Department, but for which Glen Elder was substituted by the Budget Bureau and in the President's budget; Pactola Dam of the Missouri River Basin project in South Dakota under the Rapid Valley unit; the Weber Basin project in Utah; and the Kennewick division of the Yakima project in Washington State.

Mr. JACKSON. That is fine. If you will place that in the record, please.

Mr. LINEWEAVER. I will put both of them in.

(The list referred to is as follows:)

New starts included in 1953 request as submitted to the Bureau of the Budget

Project:		*Fiscal year 1953 allotment request*
Canadian River, Tex		$1,200,000
Carlsbad (Alamogordo spillway), N. Mex		416,000
Central Valley, Calif.:		
CVP–BPA intertie		2,650,000
Sly Park Dam and conduit		2,350,000
Delta steam plant		4,800,000
Middle Rio Grande, N. Mex. (exclusive of emergency channelization)		8,904,000
Minidoka-American Falls power, Idaho		1,300,000
Minidoka-North Side pumping, Idaho		603,000
Missouri River Basin:		
Owl Creek unit—Anchor Dam	$419,000	
Lower Marias unit	4,200,000	
Missouri diversion unit	4,530,000	
Yellowtail unit	6,812,000	
Webster unit	6,475,000	
Wilson unit	4,000,000	
Glen Elder unit [1]	6,200,000	
Belvidere unit—Angus Dam	1,000,000	
Sargent unit	1,136,000	
Bostwick division—Lovewell Dam	1,100,000	
Rapid Valley unit (Pactola Dam)	2,135,000	
Subtotal		38,007,000
Provo River, Utah:		
Deer Creek power plant		1,340,000
Utah Lake pumping plant		120,000
Solano, Calif		4,958,000
Weber Basin, Utah		3,250,000
Yakima-Kennewick, Wash		2,560,000
Total		72,458,000

[1] Included in budget for 1953 in amount of $3,620,000.

Modified list of new starts, fiscal year 1953, which were emphasized in recommendations of the Secretary with amounts requested

Project	Amount recommended to Bureau of Budget [1]	Amount allowed by by Bureau of Budget
Sly Park, Central Valley project, California	$2,350,000	0
Solano, Calif	4,958,000	0
Yellowtail, Missouri River Basin, Mont	6,812,000	0
Webster, Missouri River Basin, Kans	6,475,000	0
Rapid Valley (Pactola Dam), Missouri River Basin, S. Dak	2,135,000	0
Weber Basin, Utah	3,250,000	0
Yakima-Kennewick, Wash	2,560,000	0
Total	28,540,000	0

[1] These amounts were later modified.

Mr. JACKSON. As I understand it, Mr. Straus, you are asking for $224,620,000 in new funds.

Mr. STRAUS. That is correct.

UNOBLIGATED BALANCE AVAILABLE

Mr. JACKSON. And you estimate that as of June 30 there will be available an unobligated balance of approximately $21,000,000.

Mr. STRAUS. That is our estimate as of June 30, effective on July 1.

Mr. JACKSON. You made the estimate in November, but that is roughly your present estimate of the unobligated balance?

Mr. STRAUS. Yes, sir.

Mr. JACKSON. That $21,000,000 will be in addition to the $224,620,000?

Mr. STRAUS. That $21,000,000 is all appropriated here and is not new money.

Mr. JACKSON. Is that an overage from the last appropriation, or does some of it go back to prior appropriations?

Mr. STRAUS. It goes back, but it is largely from the last appropriation and it represents funds unobligated for a number of reasons—delays in construction or getting materials, or in some instances it represents projects that were completed for less than the appropriated funds.

Mr. JACKSON. Of the $21,000,000, how much of it is not attached to any given project?

Mr. STRAUS. It is all attached to given projects, but some of it will not be used.

Mr. JACKSON. Of the $21,000,000, how much of those funds, while attached to given projects, represents a completion of those projects in accordance with the appropriation made by the Congress at that time?

Mr. STRAUS. I will give you that figure, and it will come up in the individual items. Have you that figure now, Mr. Golzé?

Mr. GOLZÉ. I do not have any precise figure on that. I do not believe any of the money is in that category except for some suspended work.

Mr. JACKSON. I assume that some of these projects have not been completed. Most of them have not. But what I am getting at is, we appropriated a certain amount for the fiscal year 1952, which

was estimated to be the requirements for fiscal year 1952; and it turns out that we do not need that much money for fiscal 1952 because contracts were less or you did not have to do what you thought you would have to do during that period.

Mr. GOLZÉ. It is mostly because of what are called program delays, such things as difficulties with priorities. Work has not been performed in 1952 and is going over in 1953.

Mr. JACKSON. Can you break it down?

Mr. GOLZÉ. We have it broken down by projects, yes, sir.

Mr. JACKSON. And that will show up in each project?

Mr. STRAUS. It will show up in our estimates of unobligated balances for each project, Mr. Jackson.

USE OF UNOBLIGATED BALANCE

Mr. JACKSON. Of this $21,000,000, you are asking that $12,000,000 be placed in a pool, and that you be granted permission to allocate those funds among various projects in a given project area or throughout the Bureau of Reclamation?

Mr. STRAUS. No; we are asking that $12,000,000 be placed in a pool by this committee, and that this committee approve specific use of that $12,000,000 for specific named purposes and projects which will be laid before the committee, all of which are heretofore authorized by the Congress and construction funds have been appropriated for.

Mr. JACKSON. In other words, you are asking that the committee make a revision of previous determinations to readjust the $12,000,000 that is now attached to specific projects in accordance with a schedule that you are going to submit to the committee in the course of these hearings. Is that correct?

Mr. STRAUS. Yes, which we have before the committee. That is correct, sir.

Mr. JACKSON. The $9,000,000 that remains will continue as is. That is, it will continue attached in accordance with the previous determination made by the Congress as to how those funds will be expended?

Mr. STRAUS. That is right. There will be no change in the appropriation action heretofore taken by the committee.

Mr. LINEWEAVER. Would you like to have that tabulation submitted here at this point, Mr. Chairman?

Mr. JACKSON. I think it would be helpful to have it in the record, and then we can have it also in the projects as they appear.

(The material referred to is as follows:)

CONSTRUCTION AND REHABILITATION

METHOD OF FINANCING OBLIGATION PROGRAM, FISCAL YEAR 1953

The budget for the fiscal year 1953, for the construction and rehabilitation program of the Bureau of Reclamation, contemplates that the program will be financed by a combination of new funds plus unobligated balances brought forward from prior years. This method of financing has been approved by the Congress for many years. In prior fiscal years the Bureau of Reclamation has held the unobligated balances in the accounts of the projects to which the funds have been appropriated or allocated.

Prior to the fiscal year 1951 appropriations by the Congress were made individually to the several projects. Beginning with the fiscal year 1951, 30 or more

construction and rehabilitation items were consolidated into one item in the appropriation bill. The Appropriations Committees of both Houses in their respective reports indicate the allotment of funds that should be made to the various projects within the lump-sum appropriation. For example, in connection with the appropriation for the fiscal year 1952 the House Appropriations Committee on pages 9 and 10 of its report (H. Rept. No. 339, 82d Cong., 1st sess.) listed the amounts approved by the committee for the several reclamation projects. The Senate Appropriations Committee in its report (S. Rept. No. 499, 82d Cong., 1st sess.) on pages 15 and 16 and pages 20 and 21 indicate the amounts allotted for the various projects.

The Secretary of the Interior assured the Congress that the amounts listed in the committee's reports as finally approved by the conference would be respected. The internal programing and accounting procedures of the Bureau have been designed to make this assurance effective and to our knowledge no allotment has been made to any project not in accordance with the intent of the appropriation committees.

To a certain extent the method of financing proposed for the fiscal year 1953 in the budget will tend to nullify the committee earmarking of funds by projects. The proposal for 1953 is that approximately two-thirds of the unobligated balance of funds estimated to be available on June 30 will be considered as a pool and be redistributed to projects needing funds in addition to new funds in the bill to finance the approved program for the fiscal year 1953. This means that on a project such as the Central Valley project some $5,000,000 of the unobligated balance anticipated to be available next June 30 would be placed in the unobligated balance pool and be redistributed to the other projects.

The method of financing is demonstrated in summary by the following tabulation:

New funds requested in the President's budget	$194, 720, 000
Estimate of unobligated balance available June 30, 1952	21, 263, 825
Transfer to projects or units	12, 386, 596
Transfer from projects or units	12, 686, 596
Amount to remain on project	8, 577, 229
Amount not required on project fiscal year 1953	521, 996
Total amount to project for fiscal year 1953	20, 441, 829
Total obligation	215, 161, 829

There follows a table showing the details of proposed transactions for each project.

The primary accomplishment of the proposed method of financing is to reduce the amount of new funds required to finance the approved obligation program for the Bureau of Reclamation for fiscal year 1953. Its primary change from prior year practice is that it departs from the allocations made in committee reports under which the Bureau would ordinarily retain the unobligated balance on the projects to which they were allotted by the committee until utilized for completion of work.

Analyses of proposed method of financing the fiscal year 1953 construction and rehabilitation program

Project or Missouri River Basin unit	New funds requested in President's budget	Estimate of unobligated balance available, June 30, 1952	Proposed disposition of estimated unobligated balance of prior years funds available, June 30, 1952					Total obligation program
			Transfer to project or unit	Transfer from project or unit	Amount to remain on project	Amount not required on project in fiscal year 1953	Total amount for project, fiscal year 1953	
Projects requesting funds in fiscal year 1953:								
Eklutna	$13,000,000							$13,000,000
Gila	5,582,000							5,582,000
All-American Canal	420,000	$1,209,362			$1,209,362	$119,375	$1,089,987	1,509,987
Colorado River front work and levee system	2,007,000							[1] 2,007,000
Davis Dam	1,754,000	1,528,661			1,528,661		1,528,661	3,282,661
Cachuma	6,270,000		$2,230,000				2,230,000	8,500,000
Central Valley	40,000,000	5,498,808		$5,498,808				40,000,000
Kern River	15,000	26,085			26,085		26,085	41,085
Colorado-Big Thompson	18,000,000		1,000,000				1,000,000	19,000,000
Palisades	10,000,000							10,000,000
Buffalo Rapids:								
First division	222,000	246,000		246,000				222,000
Second division	111,000							111,000
Hungry Horse	13,245,000							13,245,000
Sun River	40,000	5,000		5,000				40,000
Tucumcari	204,000		150,000				150,000	354,000
Rio Grande	150,000	11,118			11,118		11,118	161,118
W. C. Austin	30,000							30,000
Klamath	368,000	64,174		64,174				368,000
Provo River	2,310,000							2,310,000
Columbia Basin	20,000,000		562,754				562,754	20,562,754
Yakima-Roza	106,000	45,500			45,500		45,500	151,500
Eden	760,000							760,000
Kendrick	4,100,000							4,100,000
Riverton	437,000	120,000		20,000	100,000		100,000	537,000
Shoshone	216,000	76,651		5,000	71,651		71,651	287,651
Missouri River Basin	53,031,000	8,411,174	8,383,842	5,215,906	3,195,268		11,579,110	[3] 64,610,110
Rehabilitation and betterment of existing projects	2,342,000	246,343			246,343		246,343	2,588,343
Subtotal	194,720,000	17,488,876	12,326,596	11,054,888	6,433,988	119,375	18,641,209	[1] [2] 213,361,209

Projects not requesting funds in fiscal year 1953:								
Boulder Canyon		375,000	60,000		375,000		435,000	435,000
Kings River		35,556		1,556	34,000		34,000	34,000
San Luis Valley		525,163		212,942	312,221		312,221	312,221
Boise:								
Anderson Ranch		276,058			276,058		276,058	276,058
Drainage		44,242		39,242	5,000		5,000	5,000
Payette		215,000			215,000		215,000	215,000
Lewiston Orchards		10,911			10,911		10,911	10,911
Minidoka, Gooding		36,153		23,653	12,500		12,500	12,500
Fort Peck		321,000			321,000		321,000	321,000
Paonia		208,476		208,476				
Valley gravity		815,743		815,743				
Deschutes, north unit		352,264			352,264	177,621	174,643	174,643
Ochoco		334,383		330,096	4,287		4,287	4,287
Vermejo		225,000			225,000	225,000		
Subtotal		3,774,949	60,000	1,631,708	2,143,241	402,621	1,800,620	1,800,620
Grand total	194,720,000	21,263,825	12,386,596	12,686,596	8,577,229	521,996	20,441,829	[1] [2] 215,161,829
MISSOURI RIVER BASIN								
Divisions or units requesting funds in fiscal year 1953:								
Bostwick division	3,124,000		841,000				841,000	3,965,000
Boysen division, Boysen unit	610,000	249,160		49,160	200,000		200,000	810,000
Cheyenne division, Angostura unit	1,158,000	50,000		50,000				1,158,000
Frenchman-Cambridge division	2,043,000		1,500,000				1,500,000	3,543,000
Helena-Great Falls division, Canyon Ferry unit	4,754,000							4,754,000
Missouri-Souris division, Jamestown unit	1,000,000							1,000,000
North Dakota pumping division, Fort Clark unit	57,000							57,000
Oregon trail division, Glendo unit	100,000	150,000		150,000				100,000
Solomon division:								
Kirwin unit	6,000,000							6,000,000
Glen Elder unit	3,620,000							3,620,000
Three Forks division, Crow Creek unit	500,000							500,000
Transmission division	21,563,000	440,158	6,042,842	300,000	140,158		6,183,000	27,746,000
Yellowstone division, Savage unit	2,000							2,000
Subtotal, phase A	44,531,000	889,318	8,383,842	549,160	340,158		8,724,000	53,255,000
Phase B	383,500	1,392,337			1,392,337		1,392,337	1,775,837
Phase C	2,061,055	267,981			267,981		267,981	2,329,036
Phase D	55,445	22,555			22,555		22,555	78,000
Phase E	1,000,000							[3] 1,000,000
Other Department of Interior agencies	5,000,000							5,000,000
Subtotal	53,031,000	2,572,191	8,383,842	549,160	2,023,031		10,406,873	[3] 63,437,873

See footnotes at end of table, p. 744.

Analyses of proposed method of financing the fiscal year 1953 construction and rehabilitation program—Continued

Project or Missouri River Basin unit	New funds requested in President's budget	Estimate of unobligated balance available, June 30, 1952	Proposed disposition of estimated unobligated balance of prior years funds available, June 30, 1952					Total obligation program
			Transfer to project or unit	Transfer from project or unit	Amount to remain on project	Amount not required on project in fiscal year 1953	Total amount for project, fiscal year 1953	
Divisions or units not requesting funds in fiscal year 1953:								
Big Horn division, Owl Creek		$705,000		$705,000				
Cannonball division, Cannonball unit		215,000		215,000				
Cheyenne division, Keyhole unit		305,000		305,000				
Grand division, Shadehill unit		67,000		41,000	$26,000		$26,000	$26,000
Heart division:								
Dickinson unit		12,000		12,000				
Heart Butte unit		435,000			435,000		435,000	435,000
Smoky Hill division, Cedar Bluff unit		1,885,669		1,426,047	459,622		459,622	459,622
Lower Bighorn division, Yellowtail unit		100,000		100,000				
South Platte division, Narrows unit		50,915			50,915		50,915	50,915
Missouri-Souris division, Missouri diversion unit		470,000		470,000				
Upper Republican division, St. Francis unit		1,461,667		1,307,465	154,202		154,202	154,202
Moreau division, Bixby unit		85,234		85,234				
Yellowstone division:								
Cartwright unit		29,200			29,200		29,200	29,200
Sidney unit		17,298			17,298		17,298	17,298
Subtotal		5,838,983		4,666,746	1,172,237		1,172,237	1,172,237
Grand total, Missouri River Basin	$53,031,000	8,411,174	$8,383,842	5,215,906	3,195,268		11,579,110	[3] 64,610,110

[1] Does not include $1,200,000 contributed by Mexico.
[2] Does not include $12,154 advanced by water users for operation and maintenance.
[3] Does not include $12,154 advanced by water users.

AMOUNT OF RECLAMATION FUND

Mr. JENSEN. How much of your request for 1953 for reclamation will be paid out of reclamation funds?

Mr. GOLZÉ. $75,227,450.

Mr. JENSEN. And you are asking for how much altogether?

Mr. GOLZÉ. $224,620,000.

Mr. JENSEN. How much is in the reclamation fund now?

Mr. GOLZÉ. The reclamation fund contains about $100,000,000 at the present time, before 1953. Our estimates for 1953 contemplate there will be $100,000,000 in the reclamation fund.

Mr. JENSEN. Why do you reserve the other $25,000,000?

USE OF THE RECLAMATION FUND FOR FINANCING PROJECTS

Mr. GOLZÉ. There is no reservation made. The selection of what project is financed from the reclamation fund and what project from the general fund is evolved during the budgetary processes in this fashion. The general investigations, the operation and maintenance with two exceptions, and the general administrative expense items are all reclamation fund financed. The construction funds are allocated between general fund and reclamation fund on the basis of their legislative history. The larger multiple-purpose projects are financed from the general fund. The smaller irrigation developments are financed from the reclamation fund. Prior to fiscal year 1951, work under the Boulder Canyon Act was financed by advances to the Colorado River Dam fund from the general fund, but is now financed directly from the general fund.

Mr. JENSEN. Are you saying that $75,000,000 is all that you can expend from the reclamation fund because of the fact that there are not enough projects nor a sufficient amount of requests made for projects which are supposed to be paid out of the reclamation fund? Is that what you are saying?

Mr. GOLZÉ. In essence that would be correct. The so-called new starts to continue the reclamation program would be largely financed from the reclamation fund.

Mr. JENSEN. But you do anticipate that there will be $100,000,000 in the reclamation fund at the end of fiscal 1953?

Mr. GOLZÉ. I would like to correct that figure, if I may, Mr. Chairman. A better estimate for the fiscal year 1953 of the amount that will be available in the fund for appropriation by the Congress is $140,000,000. The fund this year had $123,000,000; and the $100,000,000 I mentioned was for last year. The fund has grown.

Mr. JENSEN. Then you will have possibly $65,000,000 in the reclamation fund at the end of fiscal 1953 unexpended?

Mr. GOLZÉ. Yes, sir. That would be unappropriated.

AVAILABILITY OF RECLAMATION FUND

Mr. JENSEN. And you have no legal way of using that money?

Mr. GOLZÉ. The money is not required for the projects that are in the program.

Mr. JENSEN. That are in the reclamation fund program?

Mr. GOLZÉ. That is right, sir.

Mr. JENSEN. So it would not be possible to use more of that money unless we passed a bill to that effect. Is that right?

Mr. GOLZÉ. It would be a matter of allocation by the committee.

Mr. JENSEN. So if the committee saw fit to take more of the reclamation fund than the $75,000,000, which you are asking for out of the reclamation fund, that would be perfectly proper?

Mr. GOLZÉ. Yes, sir. The amounts to be spent from the fund are earmarked in the bill itself. Each of the four appropriation items says a certain amount for each item to be spent from the reclamation fund.

Mr. JENSEN. Why do you not ask for more from the reclamation fund instead of having that big carry-over?

Mr. GOLZÉ. It had been contemplated that additional projects which are coming along to keep the program at a balanced level, would be financed from the reclamation fund.

Mr. JENSEN. Is it necessary to have $65,000,000 in reserve?

Mr. GOLZÉ. No, I do not suppose it is.

Mr. JENSEN. In order to be able to do what you want to do, you keep enough money to make sure that the projects will go forward in the years to come?

Mr. GOLZÉ. No, sir. At the time the submission is made to the Bureau of the Budget, it is submitted on a more or less balanced basis, with the reclamation fund fairly well consumed, and with some allowance for contingency factors. After we are advised by the Bureau of the Budget what we will have for the forthcoming year, then we have to make changes in our schedules. Ordinarily, however, we do not go into any further analysis of the assignments to the reclamation fund.

EFFECT OF APPROPRIATIONS OUT OF RECLAMATION FUND

Mr. JENSEN. If we would appropriate more out of the reclamation fund in your request, would that reduce to a like amount the deficit in the United States Treasury?

Mr. GOLZÉ. No, I do not think so. The reclamation fund is a special fund only on the books of the Treasury. It does not affect the cash operations of the Treasury in any way, Mr. Jensen.

Mr. JENSEN. It is placed on the credit side of the ledger when the United States Treasury report is announced. Is that right?

Mr. GOLZÉ. That is right.

Mr. JENSEN. Would it make any difference on the interest charge? The interest on the national debt is a large amount, over $6 billion now. If we had $65 million lying in the reclamation fund, would we not save the interest charge on that if we would use the reclamation fund rather than to go in further debt in the general fund?

Mr. GOLZÉ. I do not believe that would make any great difference, Mr. Jensen. The Treasury does not actually permit $65 million to lie in a special vault in the Treasury. It is absorbed in their general financing.

Mr. JENSEN. But you have got a lot of bookkeeping that might affect it.

Mr. GOLZÉ. If it is agreeable to the chairman, I would like to submit a statement that would show how the financing is handled in the reclamation fund.

Mr. JENSEN. Mr. Chairman, it appears this would be helpful to the committee.

Mr. KIRWAN. Yes. It may be submitted for the record.

Mr. JENSEN. The information would be helpful because it is rather difficult to understand. If a saving can be made by using some of that reclamation fund now, certainly the Bureau wants to do it.

(The information referred to is as follows:)

RECLAMATION FUND

Moneys received from the beneficiaries of the Bureau of Reclamation facilities on account of the payment of construction costs, operation and maintenance costs, water rentals and other charges, and the revenues from the sale of electric energy and municipal water, together with a percentage of moneys collected by the United States Government on account of certain mineral and oil leases, sales of public lands and other miscellaneous purposes are credited during the year to the reclamation fund. These moneys are available for appropriation by the Congress.

The unappropriated balance in the reclamation fund at June 30, 1952, is estimated at $72,110,107. Progressive credits to the fund during fiscal year 1953 are estimated at $68,209,500. Thus, a total of $140,319,607 is the potential amount estimated as available for appropriation in fiscal year 1953.

This latter amount does not constitute cash in the Treasury of the United States. It is an estimated balance of a special account in the Treasury which reflects credit—and not moneys on hand—available to the reclamation fund for appropriation by Congress. The actual cash reserve in the United States Treasury is based on expenditures authorized by Congress and not the credits, authorized for special-purpose appropriations. Only when these credits are converted to authorized expenditures by Congress do they bear any influence on the cash on hand required by the Treasury to meet the Government's obligations.

The amount of the above-estimated unappropriated balance of the reclamation fund would not be available throughout fiscal year 1953. The balance is accumulated by progressive deposits during the fiscal year and reflects what will be available by June 30, 1953. Financing of reclamation activities from the fund must be so arranged that the fund will not be overdrawn during the year. To provide a margin for failure of receipts to materialize the estimated appropriation from the fund must be held to below the total amount estimated or available by June 30, 1952.

Mr. LINEWEAVER. I might say, Mr. Jensen, a good deal of that $65 million would have been absorbed had the original program of the Department, submitted to the Budget Bureau, been approved.

Mr. JENSEN. Yes, I understand that. But the facts are that we are not using it.

NATIONS RECEIVING POINT 4 MONEY

Mr. Straus, could you list the number of nations that are receiving point 4 money for irrigation, reclamation and hydropower?

Mr. STRAUS. I could list the number of nations that any Bureau of Reclamation personnel have been detached from domestic duties and assigned to overseas duties, and will do so.

Mr. JENSEN. And the amount that each nation is receiving?

Mr. STRAUS. They received no funds from the Bureau of Reclamation at all.

Mr. JENSEN. I realize that, but point 4 money.

Mr. STRAUS. No, I do not have that list; but I do have a complete list of point 4 money that is used to pay any former Bureau of Reclamation personnel that are assigned overseas under the point 4 program, and I will offer that.

Mr. JENSEN. You will furnish a list of the nations that are receiving point 4 money and the personnel from the Bureau of Reclamation now assigned to the governments of those nations?

Mr. STRAUS. That is, any point 4 money that is used to pay expenses or salaries of former Bureau of Reclamation personnel assigned overseas, and any point 4 money that the Bureau of Reclamation handles directly or indirectly in any way.

(The information referred to is as follows:)

Number of Bureau of Reclamation employees, by country, on foreign assignments under point 4 program during fiscal year 1951 and total salaries paid for such assignments. All of the employees were on detail

Country	Number of employees	Salary during overseas assignment [1]
Costa Rica	1	$1,030
Ecuador	1	250
Honduras	1	820
Lebanon	9	18,570
Libya	1	1,650
Nicaragua	6	6,400

[1] Includes foreign post differential.

Mr. STRAUS. I want to be on record—and I think it was in my statement—that I heartily support this overseas program.

Mr. JENSEN. I have never opposed the building of a dam. I have never opposed the building of a hydro dam that would furnish hydropower, flood control, and irrigation and reclamation.

Mr. STRAUS. We are certainly together on that. I never have either, Mr. Jensen.

NEED FOR IRRIGATION AND RECLAMATION

Mr. JENSEN. I have, however, opposed the building of transmission lines, as you well know, where private industries and REA and municipalities could do the job. And I am just a little bit proud of what this committee has done. We have on many occasions, many, many occasions, denied funds for the building of transmission lines and taken that money and put it on irrigation and reclamation. And now it is paying off. You have never caught me opposing irrigation and reclamation, or asking for a reduction in funds for irrigation and reclamation.

Mr. STRAUS. I remember many funds you assisted in getting are invested in irrigation and reclamation.

Mr. JENSEN. I took funds from other things and put them on irrigation and reclamation, where I thought it could be put to better use than on some other things, because I know full well that one of these days the good Lord will not give us plenty of rain and sunshine and we will need a lot of irrigated land.

I might say right here that I am sorry that there is not more money in this bill for irrigation and reclamation. I certainly can agree with our chairman, Mr. Kirwan, when he says—and he has said time and time again—that we should be spending billions of dollars to develop the natural resources of the West and for the improvement of everything in the West as far as irrigation and reclamation are concerned,

and other related items, because that is paying off and it will continue to pay off.

I am very sorry that we are spending so much money all over the world to the end that we have to cut out things such as irrigation and reclamation and some other things that the people of the West need for the good of America as well as for themselves.

PERSONNEL

How many people are you asking for in this 1953 request for the Bureau of Reclamation?

Mr. STRAUS. If this budget is allowed, it will be approximately our present employment, which I gave here, 13,500.

Mr. LINEWEAVER. 13,500 to 14,000.

Mr. JENSEN. What is your average turn-over?

Mr. STRAUS. It is very high at the present time. I have it in terms of a reduction here, but that is not turn-over. Our reduction over the past 18 months is 27.5, but of course the turn-over is higher than that. Have you a turn-over figure, Mr. Golzé?

Mr. GOLZÉ. The turn-over figure for the first 6 months of this fiscal year is expressed in this way: Separations total 3,136; accessions, or new people on the roll, 504. There was a net decrease of approximately 2,600.

EFFECT OF JENSEN AMENDMENT

Mr. JENSEN. That did not all come about because of the Jensen amendment which Mr. Straus referred to?

Mr. STRAUS. No; that definitely did not.

Mr. JENSEN. He was just accusing me of exercising a popular pastime. It is a popular pastime to talk about reduction of administrative personnel.

Mr. STRAUS. That definitely did not all come from the Jensen amendment. Our staff is fairly highly prized by a lot of other persons in addition to the Bureau of Reclamation, and it is hard to keep them together.

Mr. JENSEN. I am very proud of the fact that the Jensen amendment has reduced to some degree, at least, your overstaffed personnel. I have not heard much from people who pay the bill out West this year. I used to hear from them very regularly and they would say, "Can you not get these people off our backs? We have got so many people in a project office, so many people in a district office, so many people in a subdistrict office, and half of them are not needed, and we have to pay the bill. You are not fooling us. It is all charged to our projects."

But I am happy to say that I do not think I have had a letter this year to that effect.

Mr. STRAUS. I am glad to have your report that the West is happy with the staffing situation.

Mr. JENSEN. I think they are beginning to be a little more satisfied, thanks to the Jensen amendment.

Mr. STRAUS. Obviously it follows that the staff is now of the correct size.

Mr. JENSEN. I think it can be reduced some yet. You even mentioned the lowering of morale. I have not talked to any employees, except the top people, who are not happy with the Jensen amendment;

and I have talked to hundreds and hundreds of them. They said it was the first time they had a chance to get that job they had been working for just above them, instead of having some political appointee who did not know anything about it come in and take the job.

You made considerable savings because you did not fill vacancies?

Mr. STRAUS. Yes, sir.

USE OF SAVINGS REALIZED

Mr. JENSEN. What did you do with those savings? Did you return them to the Treasury of the United States?

Mr. STRAUS. No. Those savings were used for purposes approved by the Congress; and of course the funds were not available for use. Under the Ferguson amendment, the funds were cut to that amount.

Mr. JENSEN. That fund cutting did not go as far as my amendment would save.

Mr. STRAUS. Well, it went in the same direction. I am not as much of an authority on it as you are.

Mr. JENSEN. Last year you had so many dollars for personnel hire?

Mr. STRAUS. Yes.

Mr. JENSEN. Under the Ferguson amendment there were some dollar cuts made which were minor compared with what the Jensen amendment would save. Now then, what are you going to do with that money that you save by not filling vacancies?

Mr. STRAUS. There are no funds appropriated in reserve for that purpose that thereby become unspent. If it was construction funds, we use it for construction.

Mr. JENSEN. It was not construction funds. It was funds for personnel services.

Mr. STRAUS. I think I am correct in saying it was all funds, that it had to do with total personnel of the Bureau of Reclamation.

Mr. JENSEN. I do not know whether the amendment for the Interior Department provided that the savings here made shall be covered in the Treasury of the United States. I do not recall that we got that in, but naturally we assumed that they would be, and they would not be used by the Bureau of Reclamation.

Mr. STRAUS. I believe there was no such clause in the Interior Department. As I recall the Jensen amendment, regardless of what fund, it was only one vacancy in four in certain categories that might be filled; that is, applied to Reclamation. That was complied with, Congressman.

Mr. JENSEN. Now I want to know: What did you do with the savings?

Mr. STRAUS. Well, the largest amounts were in the construction field. That is where the greatest personnel was, and we applied it to construction.

Mr. JENSEN. We appropriated certain amounts for construction and no provision was made to increase the construction funds by any other item that might be thrown into that fund.

Mr. LINEWEAVER. Mr. Jensen, what happened, there was so much construction rehabilitation, out of which was not to exceed a certain amount for personnel services. There was a limitation there, and we could not exceed that. In our case the workings of the Jensen amendment and the Ferguson amendment went right along together,

paralleled. We have not, and cannot, exceed the limitation put into the Ferguson amendment, a limitation on each one of our funds for personnel services.

It just happened that we had started to make our reductions, as you recall, last year before even the Jensen Amendment came in. So we were pretty well down. Our program was to reduce to about 15,000 people on the payroll for fiscal year 1953, and we are now down to about 14,000 to come within the limitations of the Ferguson amendment.

The way that worked was that the two went along together and the Jensen amendment was about on a par, so far as our operations were concerned, with the limitations in the Ferguson amendment.

Mr. JENSEN. This amendment was tacked on to five appropriation bills. The Ferguson amendment was a cut dollarwise.

Mr. LINEWEAVER. Yes, sir.

Mr. JENSEN. In the Interior appropriation bill, the conference report provided that the savings could be made by not filling vacancies, or by taking people off of the payroll immediately. Is that right?

Mr. LINEWEAVER. Yes.

Mr. JENSEN. And hence, when the Ferguson dollar cuts were adhered to, the Jensen amendment was also complied with.

Mr. LINEWEAVER. Yes. There is a chart if you want to look at it sometime. It shows the way personnel services operate.

Mr. JENSEN. During the noon hour I looked up some facts about the Jensen amendment and the Ferguson amendment. This is what I discovered: that this Jensen amendment provides that when you have reduced your personnel to 90 percent of the budget request, then the provisions of the Jensen amendment may cease to apply.

Mr. LINEWEAVER. I believe that is right, sir.

Mr. JENSEN. The dollar cuts under the Ferguson amendment did not cut 10 percent of the amount requested for personnel hire as I could understand it.

Mr. LINEWEAVER. But a limitation was placed on how much we could spend for personal services under each appropriation item.

Mr. JENSEN. Did that amount to 10 percent?

Mr. LINEWEAVER. As I recall, Mr. Jensen. I will check it and put a statement in the record. On every item except "Operation and maintenance" where your amendment as well as the Ferguson amendment took into consideration the field workers in "Operation and maintenance," not the white-collar people, and the field workers were exempted from the cut in the Ferguson amendment as well as in your amendment. The limitation in the Ferguson amendment and as I recall it was somewhere along about 10 percent with the exception of the "Operation and maintenance" item where the exemption applied to linemen, ditch riders, field workers of every kind, soil and moisture people, and so forth. Neither your amendment nor the Ferguson amendment dollarwise applied to that class or workers but it did apply on all others, approximately 10 percent of the amount estimated for personal services in the budget was put under the Ferguson limitation.

I would like to make this further statement. If you like we can put it in the record to show that our reductions were already about down to the 90 percent by the time the bill was passed. Therefore, the Jensen amendment was inoperative so far as our activities were concerned.

Mr. JENSEN. But what I want to know for sure is that the money that was saved under the provisions of the Jensen amendment has not been spent but that portion that is over and above the dollar cuts by the Ferguson amendment, if there are savings there between the Jensen amendment and the Ferguson amendment, naturally I would expect that savings to be covered into the Treasury of the United States rather than spent by the Bureau of Reclamation.

Mr. LINEWEAVER. We could not spend it anyhow because we were limited by the Ferguson amendment as to just how much we could spend. In our case we were almost down to the 90 percent where the Jensen amendment did not become operative by the time the Ferguson amendment went into effect.

Mr. JENSEN. Well, I think you had better give us proof of that statement.

Mr. LINEWEAVER. We will give you a full statement on how it operated.

(The statement referred to is as follows:)

EFFECT OF JENSEN AMENDMENT

Bureau of Reclamation filled positions subject to sec. 305 of the Interior Department Appropriation Act, 1952 (Public Law 136), as of Aug. 31, 1951, date of enactment of bill

Total positions budgeted	18, 867
Less exempted positions	5, 027
Total positions subject to sec. 305	13, 840
90 percent of positions subject to sec. 305	12, 456
Total filled positions subject to sec. 305 as of Aug. 31, 1951	12, 261

Percent reduction of Bureau of Reclamation personal services shown in the 1952 budget as reflected in amounts stipulated in text of the Interior Department Appropriation Act, 1952 (Public Law 136)

Appropriation title or activity	As shown in 1952 budget (2)		Exemption allowed before percentage reduction	Budget amount minus exemption (column 2—column 3)	90 percent allowance of budget amount minus exemption (90 percent, column 4)	Percent reduction	Distribution of—		Total allowed as stipulated in text of Interior Department Appropriation Act, 1952 (columns 3+5+7+8)
	Page	Amount					Regional centralized project activities, item (E), (column 5)	Services to projects, Denver, Colo., offices, item (F), (column 5)	
(1)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
(A) General investigations	629	$3,514,884	0	$3,514,884	$3,163,396	10	$361,976	$709,181	$4,234,553
(B) Construction and rehabilitation	635	32,400,453	0	32,400,453	29,160,408	10	2,632,552	6,311,712	38,104,672
(C) Operation and maintenance	637	10,447,840	[1] $9,283,794	[2] 1,164,046	1,047,640	10	296,162	70,918	10,698,514
(D) General administrative expenses	638	5,217,975	0	5,217,975	4,696,178	10	0	0	4,696,178
(E) Regional centralized project activities	247 Appendix	3,656,322	0	3,656,322	3,290,690	10			
(F) Services to projects, Denver, Colo., offices	248 Appendix	7,879,790	0	7,879,790	7,091,811	10			
(G) Total		63,117,264	9,283,794	53,833,470	48,450,123	10	(3,290,690)	(7,091,811)	57,733,917

[1] Direct obligations for personal services for operation and maintenance exclusive of supervisory and clerical employees.
[2] Direct obligations for personal services for operation and maintenance supervisory and clerical employees.

UNEXPENDED BALANCE

Mr. JENSEN. You estimate there will be $21,000,000 unexpended as of June 30 next?

Mr. LINEWEAVER. That was the estimate as of November 30.

Mr. STRAUS. That is unobligated funds.

Mr. JENSEN. Yes, unobligated. And you are asking this committee to permit you to spend that on specific projects?

Mr. STRAUS. No, sir. We are asking this committee to approve specific reallocation of $12,000,000 of that $21,000,000 after we have submitted to the committee where those funds come from and where we propose to use them.

REQUEST AND ALLOWANCE OF BUREAU OF THE BUDGET

Mr. KIRWAN. Mr. Lineweaver, will you submit for the record a comparative tabulation showing your request to the Bureau of the Budget and what was allowed with respect to your estimates now before the committee?

Mr. LINEWEAVER. Yes, sir. I have that statement here.

(The statement referred to is as follows:)

History of regular annual appropriation act, 1953

State	Project	Submitted by Department to Budget Bureau	Allowed by Budget Bureau
General investigations		$9,129,000	$5,000,000
Construction and rehabilitation		311,306,000	194,720,000
Allotments:			
Alaska	Eklutna	13,000,000	13,000,000
Arizona	Gila	5,682,000	5,582,000
Arizona-California	All-American Canal	1,577,000	420,000
Arizona-California-Nevada	Colorado River front work and levee system.	2,007,000	2,007,000
Arizona-Nevada	Boulder Canyon	95,000	
	Davis Dam	1,888,000	1,754,000
California	Cachuma	8,500,000	6,270,000
	Central Valley	51,398,000	40,000,000
	Kern River	15,000	15,000
	Solano	4,958,000	
Colorado	Colorado-Big Thompson	19,100,000	18,000,000
	San Luis Valley	58,000	
Idaho	Minidoka-American Falls power.	1,300,000	
	Minidoka-north side pumping.	603,000	
	Palisades	14,000,000	10,000,000
Montana	Buffalo Rapids-first division.	222,000	222,000
	Buffalo Rapids-second division.	111,000	111,000
	Hungry Horse	13,245,000	13,245,000
	Sun River	40,000	40,000
New Mexico	Carlsbad	416,000	
	Middle Rio Grande	10,954,000	
	Tucumcari	204,000	204,000
	Vermejo	1,034,000	
New Mexico-Texas	Rio Grande	150,000	150,000
Oklahoma	W. C. Austin	30,000	30,000
Oregon-California	Klamath	900,000	368,000
Texas	Canadian River	1,200,000	
Utah	Provo River	3,883,000	2,310,000
	Weber Basin	3,250,000	
Washington	Columbia Basin	24,600,000	20,000,000
	Yakima—Kennewick	2,560,000	
	Yakima—Roza	886,000	106,000

History of regular annual appropriation act, 1953—Continued

State	Project	Submitted by Department to Budget Bureau	Allowed by Budget Bureau
Construction and rehabilitation—Continued			
Allotments—Continued			
Wyoming	Eden	$760,000	$760,000
	Kendrick	4,100,000	4,100,000
	Riverton	2,052,000	437,000
	Shoshone	216,000	216,000
Various	Missouri River Basin	113,970,000	53,031,000
	Rehabilitation and betterment of existing projects	2,342,000	2,342,000
Operation and maintenance		19,896,570	19,000,000
Allotments:			
Arizona-California	Yuma	220,200	226,900
Arizona-California-Nevada	Colorado River front work and levee system.	1,237,200	1,083,450
	Parker-Davis	2,330,000	2,268,000
Arizona-Nevada	Boulder Canyon	1,595,000	1,553,000
California	Central Valley	3,305,000	3,227,900
Colorado	Colorado-Big Thompson	1,189,700	1,166,600
	San Luis Valley	9,000	9,300
Idaho	Boise	559,600	560,400
	Minidoka	368,000	362,000
Montana	Hungry Horse	200,000	195,100
Nebraska-Wyoming	North Platte	227,000	221,400
Nevada	Boulder City	611,220	590,000
New Mexico-Texas	Rio Grande	1,204,300	1,197,300
Oregon	Deschutes	186,500	193,000
Oregon-California	Klamath	334,600	346,300
Oregon-Idaho	Owyhee	415,000	
Washington	Columbia Basin	3,494,000	3,409,000
	Yakima	508,000	525,000
Wyoming	Kendrick	539,000	525,700
	Riverton	218,150	217,350
	Shoshone	292,000	289,200
Various	Soil and moisture conservation operations.	853,100	833,100
General administrative expenses		7,359,000	5,500,000
Emergency fund, irrigation and power systems.		500,000	400,000
Total		348,190,570	224,620,000

NOTE.—In addition the permanent appropriations are as follows:

	Submitted by Department to Budget Bureau	Allowed by Budget Bureau
Payments to States of Arizona and Nevada	$600,000	$600,000
Payments of interest on advances from Treasury	3,000,000	3,000,000
Payments to farmers irrigation district, North Platte project, Nebraska-Wyoming	12,000	12,000
Refunds and returns	20,000	20,000
Total	3,632,000	3,632,000

History of regular annual appropriation act, 1953: Missouri River Basin allotments

State	Division	Unit	Submitted by department to Budget Bureau	Allowed by Budget Bureau
Phase A—Units selected for construction:				
Wyoming	Bighorn Basin	Owl Creek	$455,000	
Nebraska	Blue	Belvidere	1,000,000	
Nebraska-Kansas	Bostwick		5,030,000	$3,124,000
Wyoming	Boysen	Boysen	610,000	610,000
Wyoming-South Dakota	Cheyenne	Angostura	1,175,000	1,158,000
		Rapid Valley	2,135,000	
Nebraska	Frenchman-Cambridge.		3,580,000	2,043,000
South Dakota	Grand	Shadehill	368,000	
North Dakota	Heart	Dickinson	91,000	
		Heart Butte	420,000	
Montana	Helena-Great Falls	Canyon Ferry	4,832,000	4,754,000
	Lower Big Horn	Yellowtail	6,812,000	
	Marias	Lower Marias	4,200,000	
Nebraska	Middle Loup	Sargent	1,136,000	
Montana-North Dakota	Missouri-Souris	Jamestown	1,880,000	1,000,000
		Missouri Diversion	4,530,000	
North Dakota	North Dakota pumping.	Fort Clark	57,000	57,000
Wyoming	Oregon Trail	Glendo	600,000	100,000
Kansas	Smoky Hill	Cedar Bluff	904,000	
		Wilson	4,000,000	
	Solomon	Kirwin	7,200,000	6,000,000
		Glen Elder	6,200,000	3,620,000
		Webster	6,475,000	
Montana	Three Forks	Crow Creek	500,000	500,000
Various	Transmission		33,571,000	21,563,000
Montana-North Dakota	Yellowstone	Savage	2,000	2,000
Subtotal, phase A			97,764,000	44,531,000
Phase B—Units being prepared for construction.			3,625,000	2,500,000
Phase C—Continuing work on the general plan of development.			3,904,000	
Phase D—Work in connection or in cooperation with Corps of Engineers.			82,000	
Phase E—Operation and maintenance of completed facilities:				
Nebraska-Kansas	Bostwick		131,811	113,965
Wyoming	Boysen	Boysen	90,000	90,000
Wyoming-South Dakota	Cheyenne	Angostura	28,100	15,946
		Keyhole	5,000	5,000
Nebraska	Frenchman-Cambridge.		114,732	114,732
South Dakota	Grand	Shadehill	5,100	5,100
North Dakota	Heart	Dickinson	3,000	3,000
		Heart Butte	11,000	11,000
	North Dakota pumping.	Fort Clark	3,100	3,100
Wyoming	Oregon Trail	Kortes	144,000	144,000
Kansas	Smoky Hill	Cedar Bluff	21,897	21,897
Various	Transmission		520,000	455,000
Colorado-Kansas	Upper Republican	St. Francis	17,260	17,260
Subtotal, phase E			1,095,000	1,000,000
Total, Bureau of Reclamation.			106,470,000	48,031,000
Other Department of Interior agencies:				
Bureau of Land Management.			550,000	325,000
Bureau of Mines			360,000	150,000
Fish and Wildlife Service			500,000	400,000
Geological Survey			5,250,000	3,500,000
National Park Service			500,000	300,000
Bureau of Indian Affairs			400,000	325,000
Total, other departmental agencies.			7,500,000	5,000,000
Total, Missouri River Basin.			113,970,000	53,031,000

General Investigations

Amounts available for obligation

	1951 actual	1952 estimate	1953 estimate
Appropriation or estimate:			
Reclamation fund, special fund	$4,876,000	$3,810,000	$4,200,000
Colorado River development fund	500,000	500,000	500,000
General fund	259,000	190,000	300,000
Total appropriation or estimate	5,635,000	4,500,000	5,000,000
Prior year balance available	783,939	504,829	105,700
Reimbursements from non-Federal sources	39,875	34,813	10,000
Reimbursements from other accounts	32,174	6,950	2,500
Total available for obligation	6,490,988	5,046,592	5,118,200
Balance available in subsequent year	−504,829	−105,700	
Obligations incurred	5,986,159	4,940,892	5,118,200

Note.—Reimbursements from non-Federal sources above are from the Reclamation trust fund (Interior Department Appropriation Act, 1952).

Obligations by activities

Description	1951 actual	1952 estimate	1953 estimate
Direct Obligations			
1. Engineering and economic investigations:			
(*a*) Reconnaissance	$232,130	$36,802	$52,000
(*b*) Basin surveys	616,718	952,304	1,258,800
(*c*) Project investigations	3,105,207	2,727,027	2,577,200
(*d*) General engineering and research	215,033	188,957	190,000
2. Advance planning	1,453,975	718,261	736,700
3. Investigations of existing projects	128,449	103,917	51,000
4. Alaskan investigations	202,473	206,674	250,000
Total direct obligations	5,953,985	4,933,942	5,115,700
Obligations Payable Out of Reimbursements From Other Accounts			
1. Engineering and economic investigations:			
(*a*) Reconnaissance	329	1,200	
(*c*) Project investigations	5,787	5,700	2,200
2. Advance planning	55	30	250
3. Investigations of existing projects	11	20	50
4. Alaskan investigations	25,992		
Total obligations payable out of reimbursements from other accounts	32,174	6,950	2,500
Obligations incurred	5,986,159	4,940,892	5,118,200

Obligations by objects

Object classification	1951 actual	1952 estimate	1953 estimate
BUREAU OF RECLAMATION			
Summary of Personal Services			
Total number of permanent positions	1,257	1,008	1,006
Full-time equivalent of all other positions	41	14	130
Average number of all employees	1,075	965	1,096
Average salaries and grades:			
General schedule grades:			
Average salary	$3,930	$4,463	$4,422
Average grade	GS-6.4	GS-6.6	GS-6.7
Crafts, protective, and custodial grades:			
Average salary	$2,423	$3,113	$2,830
Average grade	CPC-2.7	CPC-2.7	CPC-4.0
Ungraded positions: Average salary	$3,437	$3,624	$3,618
Personal service obligations:			
Permanent positions	$4,264,646	$4,350,333	$4,256,266
Part-time and temporary positions	128,757	30,860	169,456
Regular pay in excess of 52-week base		16,424	11,757
Payment above basic rates	47,142	44,288	32,521
Total personal service obligations	4,440,545	4,441,905	4,470,000
Direct Obligations			
01 Personal services	4,429,665	4,440,592	4,468,875
02 Travel	302,590	136,127	240,000
03 Transportation of things	29,528	12,977	15,000
04 Communication services	36,944	29,489	30,000
05 Rents and utility services	94,295	46,667	50,000
06 Printing and reproduction	29,392	42,307	45,000
07 Other contractual services	273,744	1,958	11,325
Services performed by other agencies	248,132	111,823	112,000
08 Supplies and materials	205,558	72,804	105,000
09 Equipment	184,174	41,989	42,000
10 Lands and structures	117,835	100	
13 Refunds, awards, and indemnities	293		
15 Taxes and assessments	1,947	3,902	4,000
Subtotal	5,954,097	4,940,735	5,123,200
Deduct charges for quarters and subsistence	7,408	7,900	7,500
Total direct obligations	5,946,689	4,932,835	5,115,700
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	10,880	1,313	1,125
02 Travel	5,830		
03 Transportation of things	135		
04 Communication services	201		
05 Rents and utility services	108	87	75
07 Other contractual services	562		
08 Supplies and materials	1,494	350	300
09 Equipment	12,964	5,200	1,000
Total obligations payable out of reimbursements from other accounts	32,174	6,950	2,500
Obligations incurred	5,978,863	4,939,785	5,118,200
ALLOCATION TO GEOLOGICAL SURVEY			
Average number of all employees	1		
01 Personal services:			
Permanent positions	$4,841	$700	
Part-time and temporary positions	1,232	200	
Total personal services	6,073	900	
02 Travel	883	150	
04 Communication services	2		
07 Other contractual services	17		
08 Supplies and materials	321	57	
Obligations incurred	7,296	1,107	

Obligations by objects—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
SUMMARY			
Summary of Personal Services			
Total number of permanent positions	1,257	1,008	1,005
Full-time equivalent of all other positions	41	14	130
Average number of all employees	1,076	965	1,096
Personal service obligations:			
Permanent positions	$4,269,487	$4,351,033	$4,256,266
Part-time and temporary positions	129,989	31,000	169,456
Regular pay in excess of 52-week base		16,424	11,757
Payment above basic rates	47,142	44,288	32,521
Total personal service obligations	4,446,618	4,442,805	4,470,000
Direct Obligations			
01 Personal services	4,435,738	4,441,492	4,468,875
02 Travel	303,473	135,277	240,000
03 Transportation of things	29,528	12,977	15,000
04 Communication services	33,943	29,489	30,000
05 Rents and utility services	94,295	46,667	50,000
06 Printing and reproduction	29,392	42,307	45,000
07 Other contractual services	273,761	1,958	11,325
Services performed by other agencies	248,132	111,823	112,000
08 Supplies and materials	205,879	72,831	105,000
09 Equipment	184,174	41,989	42,000
10 Lands and structures	117,835	100	
13 Refunds, awards, and indemnities	293		
15 Taxes and assessments	1,947	3,902	4,000
Subtotal	5,961,393	4,941,842	5,123,200
Deduct charges for quarters and subsistence	7,408	7,900	7,500
Total direct obligations	5,953,985	4,933,942	5,115,700
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	10,880	1,313	1,125
02 Travel	5,830		
03 Transportation of things	135		
04 Communication services	201		
05 Rents and utility services	108	87	75
07 Other contractual services	562		
08 Supplies and materials	1,494	350	300
09 Equipment	12,964	5,200	1,000
Total obligations payable out of reimbursements from other accounts	32,174	6,950	2,500
Obligations incurred	5,986,159	4,940,892	5,118,200

Analysis of expenditures

	1951 actual	1952 estimate	1953 estimate
Unliquidated obligations, start of year	$891,535	$927,234	$736,000
Obligations incurred during the year	5,986,159	4,940,892	5,118,200
	6,877,694	5,868,126	5,854,200
Deduct:			
Reimbursable obligations	72,049	41,763	12,500
Unliquidated obligations, end of year	927,234	736,000	770,000
Adjustment in obligations of prior years	5,568		
Total expenditures	5,872,843	5,090,363	5,071,700
Expenditures are distributed as follows:			
Out of current authorizations	5,872,843	3,764,000	4,230,000
Out of prior authorizations		1,326,363	841,700

Mr. KIRWAN. We will now take up the item of "General investigations."

For this item, the appropriation for this year is $4,500,000. The request for 1953 is $5,000,000, an increase of $500,000.

Pages 21 through 28 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

General investigations

Appropriation, fiscal year 1952	$4,500,000	
Prior year balance available, June 30, 1951	[1] 503,722	
Contributions, fiscal year 1952	34,813	
Funds available	5,038,535	
Less estimated unobligated balance, June 30, 1952	[1] 105,700	
Obligations program, fiscal year 1952		$4,932,835
Estimate of appropriation, fiscal year 1953	$5,000,000	
Estimate of unobligated balance, June 30, 1952	[1] 105,700	
Estimated contributions, fiscal year 1953	10,000	
Obligations program, fiscal year 1953		5,115,700

[1] Included in the unobligated balance on June 30, 1951, is $205,700 from excess Minidoka project construction funds, of which $1,000,000 was made available only for investigation of the north side pumping division, and not available for any other purpose although merged with the "General Investigations" appropriation in the General Appropriation Act of 1951. The estimated carry-over of $105,700 indicated for June 30, 1952, is from the same funds available only for use in investigation of the north side pumping division of the Minidoka project, Idaho.

JUSTIFICATION OF ESTIMATE

The planning of the basin and project developments of the Bureau of Reclamation for the utilization of the water resources of the West and of Alaska is financed by the appropriation for general investigations. Outstanding increases in population during and since World War II have aggravated deficiencies in water and power in those areas. Despite the advances made in the last decade, economic developments have failed to match the continuing population increases and deficiencies in power and water continue to increase. Investigations as proposed herein are the first step in matching feasible project construction with existing water and power demands and will clear the way for essential future developments necessary for a stable civilian economy and vital contributions to national defense.

The President's budget for fiscal year 1953 includes an estimated appropriation for general investigations of $5,000,000. This is $500,000 more than the appropriation for fiscal year 1952, and $635,000 less than the appropriation for fiscal year 1951.

The estimated appropriation of $5,000,000 includes $500,000 from the Colorado River development fund, for investigations in the States of the upper division of the Colorado River Basin (this amount, as authorized by the Boulder Canyon Project Adjustment Act of 1940, is provided annually from the power revenues of the Boulder Canyon project as a special fund for the development of projects in the Colorado River Basin); $300,000 from the general fund of the Treasury (including $250,000 for Alaskan investigations and $50,000 for investigations of irrigation developments in the Arkansas-White, Red Basin, outside of the reclamation States in the States of Arkansas, Louisiana, Missouri), and $4,200,000 from the reclamation fund.

The 1952 program represents a decline of 17 percent under the 1951 program. The 1952 funds available are being generally concentrated on the backbone of the investigation program, namely the regular project investigations, which are feasibility investigations of potential projects. Consequently, other activities had to be reduced. Project investigations will be continued in fiscal year 1953 at the same rate but small increases are made in the estimates for fiscal year 1953 to provide for more adequate minimum programs for all other activities except investigations of existing projects which are reduced.

Summary by activities

Activity	Estimated costs of investigations in the current program [1]				
	Estimated total	Total to June 30, 1951	Program, fiscal year 1952	Estimate, fiscal year 1953	Balance to complete
1. Engineering and economic investigations	$64,540,000	$22,477,233	$4,275,212	$4,090,002	$33,697,553
2. Advance planning	26,183,000	2,554,386	894,941	736,700	21,996,973
3. Investigations of existing projects	1,291,000	562,580	117,592	51,481	559,347
4. Alaskan investigations	6,734,000	167,329	243,000	250,000	6,073,671
Total, cost program	98,748,000	25,761,528	5,530,745	5,128,183	62,327,544
Less unliquidated obligations, etc			−597,910	−12,483	
Total obligation program			4,932,835	5,115,700	
Less carry-over, funds advanced, etc			−432,835	[2] −115,700	
Net appropriation or estimate			4,500,000	5,000,000	

[1] Includes investigations estimated to be active in period fiscal year 1951 through fiscal year 1958, inclusive.
[2] Includes $100,000 carry-over from excess Minidoka project construction funds in the amount of $1,000,000 made available for investigations of the north-side pumping division, which was merged with the "General investigations" appropriation in the General Appropriation Act of 1951. The estimated carry-over for fiscal year 1953 is from the same funds.

Engineering and economic investigations

Subactivity	Total estimated cost	Total to June 30, 1951	Program, fiscal year 1952	Estimate, fiscal year 1953	Balance to complete
A. Reconnaissance	$1,242,000	$300,902	$36,838	$52,000	$853,260
A. Basin surveys	12,425,000	5,166,784	975,185	1,258,802	5,024,229
C. Project investigations	47,194,000	16,109,279	3,064,366	2,589,200	25,431,155
D. General engineering and research	3,678,000	900,268	198,823	190,000	2,388,909
Total cost, engineering and economic investigations	64,540,000	22,477,233	4,275,212	4,090,002	33,697,553

Reconnaissance was practically eliminated in the fiscal year 1952 program because of lack of funds and, except for a small allowance for some projects in the upper Colorado River Basin, cannot be resumed in fiscal year 1953 although much reconnaissance needs to be done. Five reconnaissance investigations are in progress in 1952 and five in 1953.

Basin surveys will proceed in fiscal year 1953 on several basins in the Pacific Northwest and in California. Reports on the Santa Ynez and Pajaro River Basins in California are scheduled for completion. The Bureau's portion of the cooperative interagency studies for the Arkansas-White, Red Basin, will continue on a program to complete this work in fiscal year 1954. These basin surveys will proceed to appraise the potentialities of development in areas where the possibilities are unknown and where the potential developments that can maintain the civilian economy and contribute to the national defense should be planned. On several other basin surveys, now in progress, a relatively small amount of money will be spent to "wrap them up" and "place them on the shelf," until future years when more nearly ample funds can be provided for their completion. In all, work will be done on 16 basin surveys in fiscal year 1953 compared with 14 in 1952.

Project investigations in 1953 will be continued at about the same rate as in fiscal year 1952. The program for fiscal year 1953 provides for the continuation of the most important and most nearly completed of those project investigations that are in progress, which will not be completed in fiscal year 1952, and for resuming or starting work on a few additional projects. The program for fiscal year 1953 contemplates the completion of 15 reports on potential projects, including 6 potential projects in the Pacific Northwest, 3 in California, 3 in the Colorado River Basin, and 3 in the Southwest, compared with the completion of 18 reports in 1952.

General engineering and research will continue to be curtailed in fiscal year 1953. Only the most important general engineering and research investigations now in progress can be continued in fiscal year 1953. These studies, and others,

are needed to find solutions to the difficult problems that arise in the planning, designing, construction, and operation of reclamation projects. Work will be in progress on 25 studies and analyses in 1952 and 24 in 1953.

Advance planning

Total cost, advance planning:	
Total estimated cost	$26, 183, 000
Total to June 30, 1951	2, 554, 386
Program fiscal year 1952	894, 941
Estimate fiscal year 1953	736, 700
Balance to complete	21, 996, 973

Advance planning in fiscal year 1953 will continue only on the most pressing studies remaining to be done on the authorized projects, not yet under construction, in fiscal year 1952. Definite plan reports are scheduled to be completed in fiscal year 1952 for most of the eight projects in the fiscal year 1952 advance planning program, none of which are included in the fiscal year 1953 construction program. Work will continue on the preparation of the definite plan reports for the Canadian River project, Texas, and for the Middle Rio Grande project, New Mexico. Five projects are in the 1953 schedules, a reduction of four below the 1952 program.

Investigations of existing projects

Total cost, investigations of existing projects:	
Total estimated cost	$1, 291, 000
Total to June 30, 1951	562, 580
Program, fiscal year 1952	117, 592
Estimate, fiscal year 1953	51, 481
Balance to complete	559, 347

The small but important program of investigations affecting the rehabilitation and financial adjustment and water conservation needed on existing Federal reclamation projects will continue, but at a somewhat reduced rate, in fiscal year 1953. The size of the program for this activity has been steadily decreasing as the backlog of this work is being steadily reduced. In 1953 there will be activity on 14 projects compared to 23 in 1952.

Alaska investigations

Total cost, Alaskan investigations:	
Total estimated cost	$6, 734, 000
Total to June 30, 1951	167, 329
Program, fiscal year 1952	243, 000
Estimate, fiscal year 1953	250, 000
Balance to complete	6, 073, 671

The fiscal year 1953 budget includes $250,000 for Alaska investigations, which will be concentrated on the investigations of the Blue Lake and Wickersham projects now in progress. These potential developments could provide power for the power deficient Sitka and Fairbanks areas. Investigations of the most important Devil Canyon project will be started in fiscal year 1953. This project could provide a large block of power in an area where present and potential demands are greatly in excess of the present supply. The 1952 program includes six projects but in 1953 the work will be held to four projects to provide adequate financing for the Devil Canyon project.

TRANSFERS AND REIMBURSEMENTS TO OTHER AGENCIES

The program of investigations of the Bureau of Reclamation necessarily includes some small allowances for transfers of funds or reimbursements to other agencies, such as the Geological Survey, Fish and Wildlife Service, National Park Service, Weather Bureau, Coast and Geodetic Survey, and so forth, for certain specialized studies (work over and above their regular programs), which those agencies perform in connection with the Bureau's investigation program and which these other agencies are better equipped to do.

NEED FOR INVESTIGATIONS

The future of reclamation is literally dependent on the success of its investigation programs. There is constant demand from local and State interests throughout the West to continue investigations in progress or to initiate new investigations. Despite recent advances made, economic developments in the West have failed to keep up with the population increases during and since World War II. Population increases in the West far beyond the growth anticipated a decade ago are straining power and municipal water supplies, and local food production in the West is unable to keep up with the increases in population because of lack of sufficiently developed water supplies. Supplemental irrigation water is needed in many areas for irrigated lands which are only partially productive because of limited water supplies.

During the last decade the population of Alaska increased more than 40 percent. Heavy defense installation has caused new and large demands for electric power supply and municipal water. Although large sums of money are being spent on strictly defense installations in Alaska, additional public works are required to adequately develop the industrial expansion and the settlement of the Territory. Projects to produce ample quantities of low-cost hydro power would provide opportunity for development of a light-metals industry, a wood-pulp industry and other industrial developments, as well as to supply present power shortages. A large increase in the funds previously provided for these investigations would be necessary to provide plans for these developments in the near future.

It is the basic data supplied by this program that will enable the Congress to exercise its judgment in selecting projects to reactivate the reclamation program as soon as the defense situation permits.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

There follows a summary by activities of the general investigation program supported by a detailed schedule showing the amount of each investigation for the fiscal year 1952 and fiscal year 1953, together with a brief explanatory statement pertaining thereto.

You may proceed to explain this request.

Mr. LINEWEAVER. Mr. Dixon will take that, Mr. Chairman, and will submit a statement for the record and then be prepared to answer any questions that the committee might have.

Mr. KIRWAN. You may proceed, Mr. Dixon.

GENERAL STATEMENT

Mr. DIXON. You asked, Mr. Chairman, for a statement of what was covered and how it worked.

(The statement referred to is as follows:)

GENERAL STATEMENT

The estimated appropriation for general investigations for fiscal year 1953 is $5,000,000. This appropriation request includes $500,000 from the Colorado River development fund, for investigations in the States of the upper division of the Colorado River Basin (this amount, as authorized by the Boulder Canyon Project Adjustment Act of 1940, is provided annually from the revenues of the Boulder Canayon project as a special fund for the development of projects in the Colorado River Basin); $300,000 from the general fund of the Treasury, including $250,000 for Alaskan Investigations, and $50,000 for investigations of irrigation developments in the Arkansas-White and Red Basin outside of the Reclamation States in the States of Arkansas, Lousiaiana, and Missouri, and $4,200,000 from the reclamation fund.

The 1952 program of investigations is curtailed because of lack of sufficient funds and the estimated increase is required to establish a reasonably adequate minimum program. The small amount of funds available for fiscal year 1952 is being concentrated on the regular "project investigations," which are feasibility investigations of potential projects, because this activity is the backbone of the investigation program. Consequently, other activities had to be reduced accordingly because of lack of sufficient funds. Thus, there is no estimated increase in

project investigations in fiscal year 1953. The backlog of work on investigations for rehabilitation, financial, adjustments and water conservation on existing reclamation projects are being reduced gradually each year so the demand for funds for this activity is less in fiscal year 1953 than in fiscal year 1952. However, small increases are required in all other activities to establish minimum program.

Reconnaissance is nearly eliminated in the fiscal year 1952 program because of lack of funds. The fiscal year 1953 estimate includes a very small increase to provide for reconnaissance studies of some potential projects in the upper Colorado River Basin.

Most of the increase in the fiscal year 1953 estimate for general investigations is for basin surveys. This increase is required to establish an adequate program for the Bureau of Reclamation in the cooperative studies on the Arkansas-White, Red Basin, where the fiscal year 1952 program is restricted because of lack of funds, and to provide additional amounts for surveys of basins in California.

The fiscal year 1953 estimate for general engineering and research continues this activity at the same rate as in fiscal year 1952.

There is a small increase in the estimate for advance planning but these investigations will continue only on the completion of preconstruction investigations now in progress for authorized projects not included in the fiscal year 1953 construction budget. No new investigations will be undertaken under this activity except for projects which may become authorized between now and the end of fiscal year 1953. The advance planning for these projects should proceed in fiscal year 1953 because the projects are needed to provide hydroelectric power and irrigation and municipal water for power and water deficient areas and early construction is necessary for maintenance of the essential civilian economy.

The fiscal year 1953 estimate for Alaskan investigations is increased to $250,000 to provide for three investigations. The investigations of the Blue Lake project, to provide power for the Sitka area will be completed. The investigations of one other power project will be continued and an investigation will be initiated for one additional power project.

During the last decade the population of Alaska increased more than 40 percent. Heavy defense installation has caused new and large demands for electric power supply and municipal water. Additional public works, over and above strictly defense installations in Alaska, are required to adequately develop the industrial expansion and the settlement of the Territory. Projects to produce ample quantities of low-cost hydro power would provide opportunity for development of a light-metals industry, a wood-pulp industry, and other industrial developments, as well as to supply present power shortages. A large increase in the funds previously provided for these investigations would be necessary to provide plans for these developments in the near future.

Population increases in the West far beyond the growth anticipated a decade ago are straining power and municipal water supplies, and local food production in the West is unable to keep up with the increases in population because of lack of sufficient developed water supplies. Supplemental irrigation water is needed in many areas for irrigated lands which are only partially productive because of limited water supplies. In spite of the continual demand for investigations throughout the West, the Bureau has found it necessary to place a number of investigations on the shelf in recent years because of lack of sufficient general investigations funds to proceed with all of these investigations. There is a large backlog of incompleted investigations. However, in spite of limited funds, progress is being made and an effort is being made to limit the number of investigations active at one time in order to complete sooner those that remain in the program. The total number of investigations of all types in the program in fiscal year 1951 was 205. This number is reduced to 161 in fiscal year 1952 and is estimated at 123 in fiscal year 1953, a reduction of 40 percent from the fiscal year 1951 program. This includes several deferred investigations not active in fiscal year 1952 to be resumed in fiscal year 1953. Some 38 investigations of all types were completed in fiscal year 1951, 60 are scheduled for completion in fiscal year 1952 and it is estimated that 47 will be completed in fiscal year 1953, including 5 under advance planning.

The program of investigations does not draw on war materials or materials in short supply, and requires but a small amount of funds and manpower, so its continuance would not interfere with the national defense program. Maintenance of an adequate program of general investigations is essential even in times of national stress, as at present, because of the long-range aspects of the program. It requires considerable time to make adequate investigations and maintenance of an adequate program of investigations is essential to insure the availability of

projects for the construction program of future years. Moreover, the maintenance of the program of general investigations is just as essential to the defense efforts as the maintenance of a point 4 program, upon which the Nation is spending millions because some of the projects being investigated are needed now and others will be needed in the future to maintain the essential civilian economy.

Mr. DIXON. I have several other things that the committee has in the past asked us to prepare and we have fashioned our material after what you have requested for the past several years. I have here a statement on the status of the investigations, including the financial status, in a similar manner to what was in the record last year and the year before. Would you like to have those in the record?

Mr. KIRWAN. Is that about the same size as it was a year ago?

Mr. DIXON. Just about.

DATA ON FIELD INVESTIGATIONS

Last year the committee had in the record four or five tables. I have them prepared again for this year and you can put them in the record or have them for the use of the committee staff if you wish. The tables cover field investigations completed in 1951, the field investigations scheduled for completion in 1952, the reports on the potential projects scheduled for completion in 1952, and the field investigations together with reports that are programed for work in 1953.

(The data referred to are as follows:)

The appropriations for general investigations finance the project-planning program which provides for the planning of the basin and project developments of the Bureau of Reclamation for the utilization of the water resources of the West and Alaska. World War II brought about outstanding increases in population which have aggravated deficiencies in water and power in those areas. The investigation of water and power resources will clear the way for essential future developments necessary for maintenance of a stable civilian economy and important contributions to national defense. Despite the advances made in last decade, economic developments have failed to match the population increases. These investigations are the first steps required in matching feasible project construction with existing water and power demands.

LOCATION AND PURPOSE OF THE INVESTIGATIONS

The program of general investigations includes (1) engineering and economic investigations, (2) advance planning, (3) investigations of existing projects, and (4) Alaskan investigations.

Engineering and economic investigations

Engineering and economic investigations are further subdivided into (*a*) reconnaissance, (*b*) basin surveys, (*c*) project investigations, and (*d*) general engineering and research.

Reconnaissance.—Reconnaissance studies are made only to determine if more detailed basin surveys or project investigations are justified. If the results of the reconnaissance show that the project is infeasible, no detailed investigation is made and the unnecessary expense that would be involved if a basin survey or project investigation had been undertaken without first making a reconnaissance is avoided.

Basin surveys.—Basin surveys are made to appraise the potentialities of developments in areas where the possibilities are unknown and to evolve comprehensive and coordinated plans of development of the water resources of the basin for multiple uses. These studies are essential to insure that projects under construction and authorized for construction under piecemeal authorization are designed and constructed so as to fit into basin plans and are not constructed so as to preclude future optimum development for multiple water uses.

Project investigations.—Project investigations are made to evolve sound plans of development and to determine the feasibility of potential projects. Under normal

procedure, the results of the project investigation are summarized in a project planning report and presented to the Congress accompanied by a secretarial authorization or a recommendation to the Congress for or against congressional authorization for construction. These "feasibility" investigations are the first step in getting the project ready for construction and precede the advance planning stage where the detailed surveys and final designs are made. These investigations should proceed so that adequate information is available to determine feasibility before the projects are authorized for construction.

General engineering and research.—General engineering and research studies and investigations are essential to find solutions to difficult problems which arise in the planning, designing, construction and operation of reclamation projects. Since the inexpensive and easily developed reclamation projects naturally were developed first, these general engineering and research studies are essential to develop the new techniques and methods required to utilize the more difficult and less favorable remaining physical sites for project structures, to make more efficient use of old and new construction materials and to solve difficult coordination and operating problems.

Advance planning

Advance planning is the detailed investigation made after authorization and before the initiation of construction. After a project is authorized for construction detailed surveys and studies must be made, and final plans and specifications prepared in order to make the project ready to start the actual construction. It may require 1 or 2 years, or more, after authorization to complete detailed designs and to accomplish related preconstruction work that must be done before the construction can start. Therefore, such projects cannot be quickly brought to a construction state when increases in public works are needed to meet national defense requirements or economic conditions unless funds are provided for advance planning before the construction appropriations are made.

Investigations of existing projects

Rehabilitation surveys, financial adjustment studies, and water conservation studies are made on existing Federal reclamation projects to plan for their physical and financial rehabilitation and betterment. This program is small but extremely important. These studies are required to protect the interests of the Government and its investment in reclamation projects.

Alaskan investigations

Beginning with the appropriation act for fiscal year 1949, the Congress has made annual appropriations to the Bureau of Reclamation for investigations in Alaska relating to development of water resources as a basis for legislation.

STATUS OF INVESTIGATIONS JUNE 30, 1951

The development of the resources of the West for irrigation is short of the halfway mark. Only a good start has been made on hydroelectric power development. Varying degrees of progress have been made in the accomplishment of objectives such as flood control, sediment control, recreation, fish and wildlife preservation and propagation, and pollution abatement. During the first few decades of water development in the West, the inexpensive and easily developed projects were almost completely exhausted, largely by privately financed development. The remaining potentials are, in the main, long-range basin-wide developments of exceeding complexity which only the Federal Government has the ability to finance.

One reclamation project has been authorized and is under construction in Alaska. Large sums of money are being spent on strictly defense installations in Alaska, but a program of public works to develop Alaska is essential to provide impetus for the industrial expansion and settlement of Alaska which is necessary for the adequate defense of the Territory. Before a public works program of any size could go ahead in Alaska, considerable investigation work must be undertaken and completed.

Sound reclamation development is impossible without adequate planning which in turn is impossible without adequate appropriations for general investigations with which the investigations are financed. The funds available for investigations have not been adequate to meet the needs and the Bureau has been forced to limit the number of investigations included in the program because of this lack of funds. However, some 38 investigations were completed in fiscal year 1951, including all activities in the general investigations program.

Engineering and economic investigations

Reconnaissance.—The Bureau of Reclamation has made a preliminary reconnaissance of the united western investigation and closed the office conducting the survey for the present. An interim reconnaissance report was completed which is undergoing review in the Office of the Secretary.

Reconnaissance studies of five potential projects were completed in fiscal year 1951, one of which was discarded as infeasible at this time. Project investigations were initialed on the other four, as a result of the findings in the reconnaissance studies which indicated that more detailed investigations were justified.

Basin surveys.—The Flood Control Act of 1950 authorized the Secretary of the Army to develop comprehensive, integrated plans of development for the Arkansas, White-Red River Basins in the Southwest. In approving this authorization, the President directed all interested Federal agencies to work together in preparing these plans.

An interagency field committee for the Arkansas-White and Red River Basins was established by the Federal Interagency River Basin Committee on June 12, 1950, to coordinate at the field level, work in the comprehensive survey of these basins. The Bureau's cooperative investigations in these basins got under way in fiscal year 1951.

Investigations of the Rogue River Basin in Oregon by the Bureau of Reclamation were placed on the shelf by the Secretary of the Interior early in fiscal year 1951 to allow the Fish and Wildlife Service more time to obtain data on fish resources required to evaluate plans of development for the basin.

The Bureau had under way a number of other basin surveys of western streams. The investigations of the Washita River Basin in Oklahoma were nearing completion.

Project investigations.—In fiscal year 1951 the following projects were authorized for construction by the Congress:

Canadian River project, Texas
Minidoka project, Idaho, American Falls Power division and North Side pumping division
Vermejo project, New Mexico
Palisades project, Idaho, reauthorized

The Sacramento River canals were authorized as a part of the Central Valley project, California, subject to a subsequent finding of feasibility to be made by the Secretary of the Interior. Also, the Alcova power plant of the Kendrick project, Wyoming, was authorized by a finding of feasibility under reclamation law by the Secretary.

The Palisades project and the Alcova power plant (which consists only of the construction of a new power plant at an existing dam) are under construction. None of the rest of these newly authorized projects are included in the President's constructions programs for fiscal years 1952 or 1953 because of the need to reduce the size of the Federal budget and the need to concentrate on national defense, although these projects are urgently needed to help meet existing water and power shortages and to maintain the essential civilian economy.

The report on the Collbran project was transmitted to the Congress on July 3, 1951. Reports on the Hells Canyon division and the Scriver Creek power facilities, Mountain Home division, Snake River project, Idaho, Oregon were completed in fiscal year 1951.

In connection with the development of the Colorado River storage project, which would provide storage for the comprehensive development of the upper Colorado River Basin, a public hearing was held on April 3, 1950, to consider the merits of constructing Echo Park and Split Mountain Dams which would impound water within the Dinosaur National Monument. The hearing attracted large numbers of proponents from Colorado River Basin States and numerous opponents representing recreational interests. After careful analysis of the testimony presented at the hearing, the Secretary approved the completion of a report recommending construction of the dams. The report on the general project plan and on the initial units was completed in fiscal year 1951 and was under review by the affected States and Federal agencies. The plan of development for the Colorado River storage project provides for aid in the financing of the construction of irrigation projects in the upper-basin with revenues from the power developments in the storage project. The following initial units and participating projects were recommended for construction in the report:

Initial development, Colorado River storage project:
Echo Park unit, Colorado, Utah
Flaming Gorge unit, Wyoming, Utah
Glen Canyon unit, Arizona, Utah

Navajo unit, New Mexico, Colorado
Curecant unit or Whitewater unit, Colorado, one of which will be selected after more detailed studies have been made.

Participating projects:
Central Utah, project (initial phase), Utah
Emery County project, Utah
Florida project, Colorado
Hammond project, New Mexico
LaBarge project, Wyoming
Lyman project, Wyoming
Pine River project extension, Colorado, New Mexico
Seedskadee project, Wyoming
Silt project, Wyoming
Smith Fork project, Colorado

The Paonia project, Colorado, now under construction, is proposed for reauthorization as a participating project. The Eden project, Wyoming, also under construction, has been authorized as a participating project. In addition, the Shiprock Indian project is proposed for authorization in accordance with laws applicable to the development of irrigation projects on Indian reservations.

The report on Fryingpan-Arkansas project, Colorado (formerly called the initial development of the Gunnison-Arkansas project), Colorado, was under review by the affected States on June 30, 1951. This project would provide supplemental water and power for the Arkansas Valley by diversion from the upper Colorado River Basin.

The report on the Joseph City unit, Holbrook project, Arizona, was reviewed by the affected States and Federal agencies in fiscal year 1951.

Investigations of a number of other projects were in progress during the fiscal year and many more were in a deferred status because of lack of ample funds to proceed with the investigations.

General engineering and research.—In addition to its usual hydrologic studies, the Bureau of Reclamation has continued to improve the bases for its technical work, thus continuing to improve the quality of planning for the best utilization of water for irrigation and power and to coordinate flood-control operations with the Corps of Engineers.

During the fiscal year 1951, such diverse studies as the use of water on Bureau projects, the derivation of flood hydrographs from precipitation, forecasting of seasonal runoff, and sediment movement in rivers and canals were initiated or continued.

In cooperation with the Forest Service, studies of snowmelt in the Colorado River Basin were continued while studies of methods of measuring reservoir evaporation at Lake Hefner, near Oklahoma City, Okla., in cooperation with the Geological Survey, the Weather Bureau, and the Department of the Navy were in progress.

Field work in sedimentation studies continued. Resurveys of Pathfinder and Seminoe Reservoirs on the North Platte River in Wyoming were completed and special studies of sediment movement in streams were undertaken in cooperation with the Geological Survey as were some general studies of fluvial morphology.

Particular emphasis was placed on development of better methods of forecasting stream discharge, both seasonal and flood flows. Refinements in method of determining possible flood discharge have resulted in increased confidence that procedures provide a method for adequate and economic spillway design. Better methods of forecasting seasonal runoff are leading to economy of operation in irrigation projects both to the Bureau and to the farmer.

Studies of the current technical developments in artificial precipitation and salt water conversion were continued in anticipation of enactment of legislation (H. R. 6 and 7 and S. 5) which would establish an active research and demonstration program in these fields for the purpose of augmenting the Nation's fresh water supply.

The Bureau of Reclamation continued to assist in every way practical the States in the negotiations of interstate water compacts and in compact operation in fiscal year 1951, including negotiations and studies for the Canadian River compact between New Mexico, Oklahoma, and Texas; the Yellowstone River compact between Wyoming, Montana, and North Dakota; the Cheyenne River compact, between Wyoming and South Dakota; and the Bear River compact between Wyoming, Utah, and Idaho. Bureau representatives have participated directly in the negotiations for most of these compacts, and Bureau technical personnel have assisted in the studies necessary for a successful compact.

In fiscal year 1951 the Bureau participated in the international engineering studies of the Kootenai River in the Columbia River Basin, and in developing

information for use in the preparation of reports to the International Joint Commission on all international aspects of the Columbia River.

Advance planning

During fiscal year 1951, advance planning investigations were continued for the Yakima project, Kennewick division, Washington, and were initiated for the newly authorized American Falls and north side pumping divisions, Minidoka project, Idaho; Solano project, California; Middle Rio Grande project, New Mexico; and Weber Basin project, Utah.

Investigations of existing projects

Surveys on existing Federal reclamation projects looking toward the conservation of water, and physical and financial rehabilitation and betterment were in progress.

Preliminary surveys of project works to determine the extent of physical rehabilitation needed to place existing projects in good operating condition had largely been completed. Financial adjustment and water conservation studies and some further investigations preparatory to actual rehabilitation of structures were continuing in fiscal year 1951.

Alaskan investigations

The Eklutna project was authorized for construction at the beginning of the fiscal year. Investigations of two other power projects and of the Susitna River Basin were in progress at the end of fiscal year 1951.

WORK UNDER WAY AND PROPOSED

The fiscal year 1952 obligation program and the budget for fiscal year 1953 are summarized by activities as follows:

Activity	Program fiscal year 1952	Estimate fiscal year 1953
1. Engineering and economic investigations:		
(*a*) Reconnaissance	$35,695	$52,000
(*b*) Basin surveys	952,304	1,258,800
(*c*) Project investigations	2,727,027	2,577,200
(*d*) General engineering and research	188,957	190,000
Total, engineering and economic investigations	3,903,983	4,078,000
2. Advance planning	718,261	736,700
3. Investigations of existing projects	103,917	51,000
4. Alaskan investigations	206,674	250,000
Total obligation program	4,932,835	5,115,700
Less unobligated carry-over from previous year and contributions	−432,835	−115,700
Appropriation or estimate	4,500,000	5,000,000

The program of investigations of the Bureau of Reclamation as summarized above, includes small allowances for necessary transfers of funds or reimbursements to other agencies, such as the Geological Survey, Fish and Wildlife, National Park Service, Weather Bureau, Coast and Geodetic Survey, etc., for work over and above their regular programs which those agencies perform in connection with the Bureau's program and which these other agencies are better equipped to do.

The allotments of the appropriation and estimate are scheduled as follows:

Activity	Net fiscal year 1952 appropriation	Net fiscal year 1953 estimated appropriation
A. Reconnaissance	$31,681	$52,000
B. Basin surveys	856,886	1,248,800
C. Project investigations	2,609,877	2,577,200
D. General engineering and research	180,122	190,000
1. Total, engineering and economic investigations	3,678,566	4,068,000
2. Advance planning	539,820	631,000
3. Investigations of existing projects	91,614	51,000
4. Alaskan investigations	190,000	250,000
Total appropriation or estimate	4,500,000	5,000,000

The source of funds appropriated and estimated is as follows:

Fund	Fiscal year 1952 appropriation	Fiscal year 1953 estimate
General	[1] $190,000	[2] $300,000
Colorado River development	500,000	500,000
Reclamation	3,810,000	4,200,000
Total	4,500,000	5,000,000

[1] For Alaskan investigations.
[2] Includes $250,000 for Alaskan investigations and $50,000 for investigations in the Arkansas-White, Red Basin in the States of Arkansas, Louisiana, and Missouri.

FISCAL YEAR 1952 PROGRAM

The Bureau of Reclamation's fiscal year 1952 budget for general investigations was $5,500,000, but only $4,500,000 was appropriated by the Congress. Consequently, the 1952 program is curtailed because of lack of sufficient funds. The small amount of funds available for fiscal year 1952 is being concentrated on the regular "project investigations," which are feasibility investigations of potential projects, because this activity is the backbone of the investigation program. Thus, other activities had to be reduced accordingly because of lack of sufficient funds, although some 60 investigations, counting all activities, are scheduled for completion. But many investigations which were placed on the shelf in previous years because of lack of funds and a number of investigations previously scheduled to be initiated in fiscal year 1951 could not be included in the program because of lack of sufficient funds.

Engineering and economic investigations

Reconnaissance.—A reconnaissance of the Okanogan River Basin was completed early in the fiscal year. Other than this study, reconnaissance (including reconnaissance of the united western investigation) is practically eliminated from the fiscal year 1952 program because of lack of funds.

Basin surveys.—The report on the Washita River subbasin, a tributary of the Red River in Oklahoma, is scheduled for completion in fiscal year 1952. Other important basin surveys now in progress are the Gulf Basin in Texas, Pecos River Basin, N. Mex., and Tex., Klamath River Basin, Calif and Oreg., the Pajaro River Basin and several subbasins of the Central Valley in California and the Snake River Basin in Idaho and Oregon.

The survey of the Arkansas-White, Red River Basin is continuing in cooperation with other Federal agencies to evolve comprehensive plans of development for the basin

Project investigations.—In the first half of fiscal year 1952, a feasibility report on the Deer Creek power plant, Provo River project, Utah was completed, and reports on the Hells Canyon division and Scriver Creek power facilities, Mountain Home divisions, of the Snake River project, Idaho and Oregon, have been forwarded to the Congress and several other reports are under review by the affected States and Federal agencies. A number of investigations are in progress. The completion of reports as scheduled depends on actions of the reviewing agencies and because it is not always possible to forecast the actions of the agencies in these reviews more reports generally are scheduled than are completed. It is anticipated that some 18 project reports will be completed this year and submitted to the President.

General engineering and research.—Important general engineering and research investigations are continuing in fiscal year 1952, to find solutions to the difficult problems that arise in the planning, designing, construction, and operation of reclamation projects, including studies of sediment transportation in streams and deposition in reservoirs; aggradation and degradation of stream beds, above and below dams; reservoir evaporation studies; irrigation water requirement studies; hydrometeorological studies to develop methods and techniques of determining maximum and probable rainfall, retention and runoff for use in estimating spillway requirements; studies for the development of improved procedures for forecasting water yields and rates of runoff from snow melts; network analyses studies of electric power flow in interconnected power systems; studies of improved land use, soil management, and irrigation practices on small projects;

studies of effects of irrigation developments on agricultural surpluses; water studies in connection with river compacts; and other similar general studies.

Because of the small appropriation for fiscal year 1952, it has not been possible to initiate the small program of research on the basic properties and behaviors of construction materials, and on the mechanics of high-head and high-velocity flows of water in the laboratories of the chief engineer as planned in the fiscal year 1952 budget estimate, although these investigations are needed to provide basic data to aid in improving structural designs and construction methods which would result in better and more economical designs.

Advance planning

Advance planning is in progress on nine newly authorized projects. Advance planning is scheduled for completion in fiscal year 1951 for the American Falls power division of the Minidoka project, Idaho, Deer Creek power plant of the Provo River project, Utah, Solano project, California, and Vermejo project, New Mexico; is being continued on the North Side pumping division of the Minidoka project, middle Rio Grande project, New Mexico, Weber Basin project, Utah, and Kennewick division, of the Yakima project; and is being initiated for the Canadian River project, Texas. Funds were provided by Congress for the construction of the Vermejo project in a supplemental appropriation for fiscal year 1952. None of the rest of these nine projects are included in the fiscal year 1952 construction program except for the emergency channelization work of the Middle Rio Grande project. However, definite plan reports are scheduled to be completed for each of these projects in fiscal year 1952 except for the Canadian River project.

Investigations of existing projects

The small but important program of investigations affecting the rehabilitation and financial adjustment and water conservation needed on existing Federal reclamation projects continue in fiscal year 1952. Since the need for these investigations came about mainly as a result of deferred maintenance during the depression in the 1930's and during World War II, and since this program has been in progress for several years, the number of investigations remaining to be completed is less each year.

Alaskan investigations

A reconnaissance report on the potential development of water resources in the Territory of Alaska was cleared with the Office of the President and submitted to the Congress in July 1951. The reports on the Swan Lake and Lake Dorothy projects will be completed late in fiscal year 1952. The survey of the Susitna River Basin is also scheduled for completion. Investigations of the Blue Lake, Wickersham, and Wood Canyon projects and Yukon River Basin, are in progress. All of these projects are potential power developments for power-deficient Alaska.

FISCAL YEAR 1953 ESTIMATE

The estimated appropriation for general investigations for fiscal year 1953 is $5,000,000. This appropriation request includes $500,000 from the Colorado River development fund, for investigations in the States of the upper division of the Colorado River Basin (this amount, as authorized by the Boulder Canyon Project Adjustment Act of 1940, is provided annually from the revenues of the Boulder Canyon project as a special fund for the development of projects in the Colorado River Basin); $300,000 from the general fund of the Treasury, including $250,000 for Alaskan investigations, and $50,000 for investigations of irrigation developments in the Arkansas-White and Red Basin outside of the reclamation States in the States of Arkansas, Louisiana, and Missouri, and $4,200,000 from the reclamation fund.

This estimate of $5,000,000 is $500,000 more than the appropriation for fiscal year 1952, which was $4,500,000, but is $1,000,000 less than the President's budget for fiscal year 1952 and $635,000 less than the appropriation for fiscal year 1951. The President's fiscal year 1952 budget included a minimum program for general investigations. Thus as a result of the reduction of $1,000,000 in the amount appropriated by the Congress for fiscal year 1952, the fiscal year 1952 program is less than a desirable minimum program and the fiscal year 1953 estimate includes a slight increase to provide sufficient funds for the minimum program required to provide new projects vital to the maintenance of the essential civilian economy. Since the 1952 program is curtailed because of lack of sufficient funds, the small amount of funds available is being generally concentrated

on the regular "project investigations," which are feasibility investigations of potential projects, because this activity is the backbone of the investigation program. Consequently, other activities had to be reduced accordingly because of lack of sufficient funds. Project investigations will be continued in fiscal year 1953 at about the same rate but small increases are made in the estimates for fiscal year 1953 to provide for more adequate minimum programs for all other activities except investigations of existing projects which are reduced.

Engineering and economic investigations

Reconnaissance was practically eliminated in the fiscal year 1952 program because of lack of funds, and except for a small allowance for some projects in the upper Colorado River Basin, cannot be resumed in fiscal year 1953 although much reconnaissance needs to be done. The fiscal year 1952 obligation program for reconnaissance is $35,695. The fiscal year 1953 estimate is $52,000, an increase of $16,305. The studies being undertaken or resumed in fiscal year 1953 are needed to provide data desired by the affected States to plan for use of each State's share of the water of the Colorado River system under the provisions of the upper Colorado River compact. Reconnaissance studies for the Dulce project, Colorado, New Mexico, Pack Creek project, Utah and Yelm project, Washington, are scheduled for completion in fiscal year 1953.

Basin surveys.—The fiscal year 1952 obligation program for basin surveys is $952,304. The fiscal year 1953 estimate includes $1,258,800, an increase of $306,496 which is required to provide adequate programs for continuation of the Arkansas, White, Red Basin surveys and investigations of several basins in California. The estimate provides $400,000 to continue the Bureau's portion of the cooperative interagency studies of the Arkansas-White, Red Basin, on a program to complete this work in fiscal year 1954. The afore-mentioned $400,000 includes $50,000 from the general fund for irrigation investigations east of the reclamation States in the States of Arkansas, Louisiana, and Missouri. Basin surveys also will proceed on several basins in the Pacific Northwest. Reports on the Santa Ynez and Pajaro River Basins in California are scheduled for completion in fiscal year 1953. These basin surveys will proceed to appraise the potentialities of development in areas where the possibilities are unknown and where the potential developments that can maintain the civilian economy and contribute to the national defense should be planned. On several other basin surveys, now in progress, a relatively small amount of money will be spent to "wrap them up" and "place them on the shelf," until future years when more nearly ample funds can be provided for their completion.

Project investigations will be continued at about the same rate. Fiscal year 1952 obligation program is $2,727,027 and the fiscal year 1953 estimate is $2,577,200, a reduction of $149,827 (or a cut of 5 percent). After critical review, the program for fiscal year 1953 provides for the continuation of the most important and most nearly completed of those project investigations that are in progress, but will not be completed in fiscal year 1952, and for resuming or starting work on very few additional projects. The program for project investigations provides for emphasis on the potential power projects and those projects which would provide urgently needed municipal and industrial water supplies, because of the immediate need for such developments in the Western States. The program also provides for the continuation of the most important and most nearly completed of those irrigation project investigations that are in progress. The total number of investigations is reduced so as to concentrate the limited funds on fewer projects in order to complete promptly those reports that are well along. The program for fiscal year 1953 contemplates the completion of 15 reports on potential projects, including six projects in the Columbia River Basin, one in the Rogue River Basin, three in California, three in the lower Colorado River Basin, one in the upper Colorado River Basin, and one in the Rio Grande Basin.

It must be emphasized that a great amount of investigation and study is required to develop a sound project plan of development. Ordinarily several years are required to complete a project investigation. Moreover, this job of investigation and planning is becoming more and more involved each year. The remaining potentials are, in the main, long-range multiple-purpose developments of exceeding complexity which only the Federal Government has the ability to finance. It is necessary to obtain cooperation of State and Federal agencies and the views and desires and the support of the local people who participate in operating projects or would participate in potential projects if developed. Such coordination requires time, and cannot be effected quickly if the need arises suddenly for an accelerated program of construction of new projects. It is quite important that the program for project investigations continue because these investigations are

required to evolve sound plans of development and to determine the feasibility of potential projects. If thsee investigations do not proceed, projects may be authorized, and placed under construction without adequate planning, because of the urgent need for additional water resources development in the West.

General engineering and research studies will continue to be curtailed in fiscal year 1953 as in fiscal year 1952. The fiscal year 1952 obligation program for this activity is $188,957 and the fiscal year 1953 program is $190,000, an increase of only $1,043. This budget estimate does not provide for the initiation of a program of research on the basic properties and behavior of construction materials which should proceed, when funds are available, to provide basic data needed to aid in improving structural designs and construction methods.

The program for general engineering and research must proceed if adequate solutions are going to be provided to meet the difficult problems which are arising in the planning, designing, construction, and operation of reclamation projects. Any further reduction in the work already under way would result in elimination of very vital studies which could only produce extremely minor savings in funds as the program for general engineering and research is but a very small part of the program of general investigations. Elimination of these studies would result in only an extremely small immediate saving but certainly would result in greater costs of projects to be constructed in the future.

Advance planning

The fiscal year 1952 obligation program for advance planning is approximately $718,261 and $736,700 (including $105,700 estimated carry-over available for Minidoka project, North Side pumping division, only), are provided in the fiscal year 1953 budget, an increase of only $18,439. Only newly authorized projects not included in the fiscal year 1953 construction program approved by the Bureau of the Budget are included in the fiscal year 1953 advance planning program. Investigations will proceed on the Canadian River project on a schedule to complete the definite plan report on the project in the following fiscal year. The investigations of the North Side pumping division, Minidoka project, Idaho, the middle Rio Grande project, New Mexico, and the Weber Basin project, Utah, will proceed to provide basic data for final designs and specifications of initial construction features and other preconstruction activities will continue so that these projects can be placed under actual construction, promptly, when construction funds are available.

Early construction of these authorized projects is urgently needed. The Canadian River project would provide supplemental municipal and industrial water for Amarillo and a number of the towns in the Texas Panhandle and also would provide irrigation water. The territory served by this project is experiencing considerable war activity with the Atomic Energy Commission installation under construction at Amarillo; the reactivation of Air Force bases at Lubbock and at Amarillo; and expansion of carbon-black plants, synthetic rubber plants, celanese plant, and petroleum cracking plants at Borger and vicinity. The farms irrigated from wells are expanding rapidly because of high crop prices, causing a lowering in the over-all water table of this region. This all tends to produce a critical situation in regard to municipal and industrial water which can be alleviated by construction of the Canadian River project.

The construction of the north side pumping division of the Minidoka project is needed to produce food and fiber for expanded consumption due to defense operations and to provide homesteads on public lands to provide farm homes for war veterans.

The need for construction of the middle Rio Grande project is extremely urgent. The economic stability of the Middle Rio Grande Valley is being threatened by a combination of problems which the local people can no longer cope with. Progressive aggradation of the river channel has caused, and is continuing to cause, a general rise in the water table which has resulted in abandonment of productive lands, reduction in crop yields on the remaining affected lands, delinquency in payment of charges with resultant financial difficulties on the part of the conservancy district, a progressive increase in flood damages, inability on the part of New Mexico to deliver water required under the Rio Grande compact, and a general low level farm income.

The project plan, which was developed jointly by the Bureau of Reclamation and the Corps of Engineers, provides for the construction of river control works and rehabilitation and further development of the lands within the Middle Rio Grande Conservancy District. In the realization of this plan, the Bureau of Reclamation will undertake the rehabilitation and extension of existing irrigation and drainage systems, together with channel rectification and improvement of the

main channel of the Rio Grande. This will help stabilize the water supply for agricultural and defense areas and provide adequate drainage for about 85,000 acres of land and effect a large saving of water in some sections along the Rio Grande Channel. The defense installations located within the project area include the Kirtland Air Force Base, Ordnance Research, Sandia Base, and Los Alamos Atomic Laboratory. The middle Rio Grande area has the greatest concentration of population in the State. The population increase in the city of Albuquerque has been from 35,500 in 1940 to 100,000 in 1951, with similar increases occurring in other parts of the valley. Continued below normal river flows have made it imperative that all available water be used benefically. Channel rectification has been determined to be the most effective means of conserving water to meet the emergency created by the water shortage.

The middle Rio Grande project is designed to restore to a firm economy and engineering foundation the agricultural area tributary of the city of Albuquerque, N. Mex. This work can no longer be postponed, because in this area are located important facilities related to defense. These facilities are responsible for much of the increase in population and the corresponding heavy drain on the very limited water supply that has occurred in recent years.

The Kennewick Division is urgently needed to replace lands taken out of production directly and indirectly as a result of defense activities and to help fulfill the agricultural and power requirements brought about by such activities. The division is located immediately adjacent to the Hanford Works of the Atomic Energy Commission. In the same area the McNary Dam is under construction by the Army Corps of Engineers. The results of these activities have caused the population of the area to increase over 300 percent since 1940. The Atomic Energy Commission has acquired 290,000 acres in Benton County of which 7,000 acres have been removed from agricultural production by reason of the Commission's activity. The Corps of Engineers is acquiring 9,200 acres for the McNary project of which 2,400 acres are in the Columbia irrigation district, and some 300 farms will be flooded out by McNary Reservoir. To compensate for the losses sustained to date the Kennewick division will provide 375 new farm opportunities. Agricultural product output will be returned to or will exceed earlier production. The division power facilities will contribute substantially toward relieving the area power shortage. Assurance of highly productive lands is evident from the now cultivated Highlands area.

The Weber Basin project is of extreme importance as a source of additional water to the portion of central Utah lying north of Salt Lake City which centers around the city of Ogden, Utah's second largest city, and is now suffering from depleted supplies. The project is designed to furnish water for domestic, industrial, and irrigation use in an area that has become the most important supply base for the armed services in the western United States.

In brief, in the project service area, covering Weber and Davis Counties, are located the Utah General Depot, Ogden Arsenal, Clearfield Naval Supply Depot, and the Hill Air Force Base. The depots and the arsenal constitute the western center for this type of activity serving the Pacific coast and Pacific overseas operations. Placed in this location for protection against possible west coast attacks, the services are continuing to increase and expand their substantial investment in facilities in Davis and Weber Counties. Primarily, as a result of their activities, population increases have placed a heavy burden on the existing sources of domestic water, industrial water and food, which promise to break down under the continuing increase in people and facilities now going on. Construction of the project facilities is the only feasible answer to the increased demands as the necessity for both irrigation and municipal water that existed at the time of authorization has become increasingly acute.

Advance planning for these projects should not be curtailed, because these are the projects on which the Bureau is in a position to advance and complete the detailed studies which are required before actual construction can be initiated. And these projects, if made ready for construction, would be in a position to make a major contribution to national defense and the maintenance of the essential civilian economy in the Western States, as they would provide hydroelectric power and/or municipal water, as well as irrigation water, in power- and water-deficient areas. Under a curtailed program for advance planning the Bureau would not be in a position to proceed promptly with the construction program to make this contribution.

Investigations of existing projects

The small but important program of investigations affecting the rehabilitation and financial adjustment and water conservation needed on existing Federal recla-

mation projects will continue, but at a reduced rate, in fiscal year 1953. The fiscal year 1952 obligation program is $103,917. This program is reduced to $51,000 in fiscal year 1953, a reduction of $52,917. The site of the program for this activity has been steadily decreasing as the backlog of this work is being steadily reduced. Investigations will be in progress on 15 existing projects in the fiscal year 1953 program of which 10 are scheduled for completion during the fiscal year.

Alaskan investigations

The fiscal year 1952 obligation program for Alaskan investigations is $206,674. The fiscal year 1953 estimate is $250,000, an increase of $43,326 which is urgently needed because before a public works program of any size could go ahead in Alaska, considerable investigation work must be undertaken and completed. The program of fiscal year 1953 is concentrated on investigations of three potential power projects which could provide additional hydroelectric power for power deficient Alaska. The investigtions of the Blue Lake and Wickersham projects, now in progress, will continue. These potential developments could provide power for the power deficient Sitka and Fairbanks areas. Investigations of the Devil Canyon project will be started in fiscal year 1953. This project could provide a large block of power in an area where present and potential demands are greatly in excess of the present supply.

Development of the natural resources of Alaska is essential for industrial development and settlement of the Territory, and also for the defense of the Territory. A shortage of low-cost power exists at the present time in practically every community in Alaska. Even in some areas where the supply is adequate, largely because of restrictive use as result of high cost, a shortage appears imminent. Development of many known strategic metallic and nonmetallic mineral deposits is largely dependent on availability of reasonably priced power and transportation. A source of local construction materials, such as the two large potential cement plants, one on Kenai Peninsula near Homer and the other on the Nenana River and the Alaska Railroad near Windy, can be made attractive for development if a low-cost source of power is found to supply this potential industry. The commander in chief, Alaska, with full authority over all ground, naval and air forces in Alaska is cooperating fully with the Bureau of Reclamation in developing hydroelectric power resources to insure an adequate power supply for military needs. The power supply in Alaska has been woefully inadequate to meet military needs even under peacetime conditions, and installation of high-cost fuel-oil or coal-burning steam-generating plants has been necessary. Transportation alone of fuel oils from California to Alaska sometimes costs as much or more than the fuel itself. This often results in a production cost of electric power that approaches 3 cents per kilowatt-hour. In many Alaska communities water supply problems for municipal and domestic uses are critical. Studies should be made at an early date of possible means of supplementing critically inadequate supplies for these and industrial uses. Flood control and navigation and other multiple uses which should be investigated. Advancement of the program of investigation of water resources development in Alaska is extremely urgent.

Need for investigations

There is constant demand from local and State interests throughout the West to continue investigations in progress or to initiate new investigations. This is true because of the great need for additional developments to provide water and hydroelectric power. Economic developments in the West have failed to keep up with the population increases during and since World War II. Population increases in the West far beyond the growth anticipated a decade ago are straining power and municipal water supplies, and local food production is unable to keep up with the increases in population because of lack of sufficient developed water supplies. Supplemental irrigation water is needed in many areas for irrigated lands which are only partially productive because of limited water supplies. Flood control is also needed in many areas. This situation prevails throughout most of the West and Alaska. But in spite of the continual demand for investigations throughout the West, the Bureau has found it necessary to place a number of investigations on the shelf in recent years because of lack of sufficient "General investigations" funds. Any further reduction in funds will cause further lag in what is already as minimum program.

Since population increases in the West far beyond the growth anticipated a decade ago are straining power and municipal water supplies, and local food production in the West is unable to keep up with the increases in population because of lack of sufficient developed water supplies, new projects to supply those needs

are sure to be authorized and placed under construction regardless of whether adequate investigations have been made or not. When projects are authorzied without adequate investigations, serious losses due to poor plans and false starts always result.

The investigation of potential water and power should proceed; for these potential irrigation and power projects, if constructed, not only could aid in defense, but later would produce untold wealth to help pay the current heavy costs for the Nation's protection.

The program of general investigations is but a small part of the Bureau's total program and is a very small part of the Nation's annual budget. Even if the total program were eliminated, only a very small immediate saving would result, which would be more than offset by the loss of key personnel trained for this highly specialized activity and by more expensive construction in future years because of lack of adequate planning at present. The Nation cannot afford to make a reduction in its investigation program just to make an extremely small reduction in the size of the annual budget.

FIELD INVESTIGATIONS COMPLETED IN FISCAL YEAR 1951

Engineering and economic investigations

Reconnaissance

1. Hartline project, Washington.
2. Cliffs-Divide project, Colorado.
3. Gunnison River project, Colorado.
4. Washoe project, California, Oregon.
5. Carson River project.

Basin Surveys

6. Rogue River Basin, Oreg.,Calif. (Bureau of Reclamation studies completed.)
7. New Mexico water resources, New Mexico.

Project investigations

Deschutes project, Oregon.

8. Domestic water system.
9. Colorado River storage project, initial units, Arizona, Colorado., New Mexico, Utah, Wyoming.

Middle River Division.

10. Glen Canyon unit, Arizona, Utah.
11. Florida project, Colorado.
12. Smith Fork project, Colorado.
13. Hammond project, New Mexico.
14. La Barge project, Wyoming.
15. Lyman project, Wyoming.
16. Pine River project extension, Colorado, New Mexico.
17. Seedskadee project, Colorado.
18. Silt Project, Colorado.
19. Canadian River project, Texas.
20. Canton project, Oklahoma.
21. Vermejo project, New Mexico.
22. Carlsbad project, New Mexico.
23. Falcon project (power study), Texas.
24. Fort Gibson project, Oklahoma.

General engineering and research

25. Sprinkler irrigation study.
26. Cooperative fruit study, Washington.

Investigations of existing projects

Boise project, Idaho.

27. Financial adjustments.

Frenchtown project, Montana.

28. Financial adjustments.

Newlands project, Nevada.

29. Rehabilitation survey.

Milk River project, Montana.

30. Water conservation study.

Sun River project, Montana.

31. Water conservation study.
32. Rehabilitation survey.

Buffalo Rapids project, Montana.

33. Financial adjustments.

34. Water-conservation study.
Budford-Trenton project, North Dakota.
35. Water-conservation study.
Huntley project, Montana.
36. Water-conservation study.
Lower Yellowstone project, Montana, North Dakota.
37. Water-conservation study.
Alaskan investigations
38. Yukon-Taiya project (preliminary reconnaissance study), Alaska, Canada.

FIELD INVESTIGATIONS SCHEDULED FOR COMPLETION IN FISCAL YEAR 1952

Engineering and economic investigations
Reconnaissance
1. Columbia Basin project, Washington, third powerhouse, Grand Coulee Dam.
2. Okanogan River Basin, Wash.
Basin surveys
3. Washita River subbasin, Oklahoma, Texas.
Project investigations
4. Animas-LaPlata project, Colorado, New Mexico, LaPlata division.
5. Balmorhea project, Texas.
6. Big Lost River project, Idaho, Mackay division.
7. Boise project, Idaho, Payette division, Payette Heights unit.
Central Valley project (ultimate plan), California.
Kings River division.
8. North Fork Kings unit (ultimate development).
Sacramento River division.
9. Clikapudi unit.
10. Sacramento Canals unit.
11. Trinity River division.
Colorado River storage project.
Green divi-ion.
12. Echo Park unit, Colorado, Utah.
13. Flaming Gorge unit, Utah, Wyoming.
14. Crooked River project, Oregon.
15. Emery County project, Utah.
16. Fort Gibson project, Oklahoma.
17. Foster Creek project, Washington.
18. Goose Lake project, Oregon.
19. Gooseberry project, Utah.
20. Grants Pass project, Oregon, Savage Rapids Dam.
21. Humboldt project, Nevada.
22. Kalispell project, Montana.
23. Middle Clark Fork project, Montana, Idaho.
24. Moapa Valley project, Nevada.
25. Nueces River power project, Texas.
26. Paradox project, Colorado (preliminary study).
27. Provo River project, Utah, Deer Creek division, Deer Creek power plant.
28. San Diego project, California, metropolitan connection enlargement.
29. Santa Maria project, California.
30. Sequim project, Washington.
Snake River project, Idaho, Oregon.
31. Hells Canyon division.
32. Mountain Home division.
33. West Texas project, Texas (preliminary study).
34. Brownwood division.

General engineering and research
35. General power studies, region 5.
36. Print hydrological bibliography.

Advance planning
37. Minidoka project, Idaho, American Falls power division.
38. Provo River project, Utah, Deer Creek division, Deer Creek power plant.
39. Solano project, California.
40. Vermejo project, New Mexico.

Investigations of existing projects

Boise project, Idaho.
41. Arrowrock division, financial adjustments.
42. Payette division, rehabilitation survey.
43. Huntley project, Montana, financial adjustments.
44. Klamath project, California, Oregon, financial adjustments.
45. Milk River project, Montana, rehabilitation survey.

Newlands project, Nevada.
46. Financial adjustments.
47. Water conservation study.
48. Okanogan project, Washington, rehabilitation survey.
49. Owyhee project, Oregon, Idaho, financial adjustments.
50. Riverton project, Wyoming, water-conservation study.

Sanpete project, Utah.
51. Ephraim division, financial adjustments.
52. Spring City division, financial adjustments.

Shoshone project, Wyoming.
53. Financial adjustments.
54. Water-conservation study.

Umatilla project, Oregon, Hermiston and West.
55. Extension irrigation districts, financial adjustments.
56. Yuma Auxiliary project, Arizona, rehabilitation survey.

Yuma project, Arizona, reservation division.
57. Rehabilitation survey.

Alaskan investigations

58. Lake Dorothy project, Alaska.
59. Susitna River Basin, Alaska.
60. Swan Lake project, Alaska.

REPORTS ON POTENTIAL PROJECTS SCHEDULED FOR COMPLETION IN FISCAL YEAR 1952

1. Animas-La Plata project, Colorado, New Mexico, La Plata division.
2. Boise project, Idaho, Payette division, Payette Heights unit.
3. Canton project, Oklahoma.

Central Valley project (ultimate plan), California.

Kings River division.

4. North Fork Kings unit (ultimate development).

Sacramento River division.

5. Sacramento Canals unit.

6. Trinity River division.

7. Crooked River project, Oregon.
8. Deschutes project, Oregon, domestic water supply.
9. Fort Gibson project, Oklahoma.
10. Goose Lake project, Oregon.
11. Gooseberry project, Utah.
12. Humboldt project, Nevada.
13. Lower Nueces River project, Texas.
14. Palo Verde mesa coordinating investigations, California, Arizona.
15. Provo River project, Utah, Deer Creek division, Deer Creek power plant.
16. Santa Maria project, California.
17. Sequim project, Washington.
18. West Texas project, Texas, Brownwood division.

FIELD INVESTIGATIONS SCHEDULED FOR COMPLETION IN FISCAL YEAR 1953

Engineering and economic investigations

Reconnaissance

1. Dulce project, Colorado, New Mexico.
2. Park Creek, Utah.
3. Yelm project, Washington.

Basin surveys

4. Pajaro River Basin, Calif.
5. Santa Ynez River Basin, Calif.

Project investigations

6. Baker project, Oregon, upper division.

7. Central Utah project, initial phase, Utah.
Central Valley project (ultimate plan), California.
American River division.
8. Union Valley unit.
9. Upper San Joaquin division.
10. Collbran project, Colorado.
11. Colorado river storage project, San Juan division, Navajo unit.
12. Deschutes project, Oregon, supplemental storage.
13. Dixie project, Utah.
14. Fort Mohave project, Nevada.
15. Fruitgrowers Dam project extension, Colorado.
16. Fryingpan-Arkansas project, Colorado (formerly called Gunnison-Arkansas project, Roaring Fork diversion, initial phase).
17. Grande Ronde project, Oregon.
18. Michaud Flats projects, Idaho.
19. Pendleton project, Oregon.
20. Palo Verde mesa coordinating investigations, California, Arizona.
21. Rathdrum Prairie project, Idaho, Washington.
22. Rogue River Basin project, Oregon, talent division.
23. Santa Margarita project, California.
24. South San Juan project, New Mexico.
25. Victor project, California.
26. Washoe project, California, Nevada.
27. Willamette Valley storage utilization project, Oregon.
28. Yakima project, Washington, supplemental storage.
29. Yampa River project, Little Snake division, Savery-Pot Hook unit.

General engineering and research

30. Agricultural surpluses and land-development study.
31. Study of statistical, hydrologic, structural, economic, and ethical phases of spillway design floods.

Advance planning

32. Canadian River project, Texas.
33. Middle Rio Grande project, New Mexico.
34. Minidoka project, Idaho, northside pumping division.
35. Weber Basin project, Utah.
36. Yakima project, Kennewick division, Washington.

Investigations of existing projects

37. Buford-Trenton project, North Dakota, financial adjustments.
Gila project, Yuma Mesa division,
28. Land-pattern survey.
39. Rehabilitation survey.
40. Grand Valley project, Colorado, Loma extension division, financial adjustments.
41. Milk River project, Montana, financial adjustments.
42. Minidoka project, Idaho, financial adjustments.
43. Lower Yellowstone project, Montana, financial adjustments.
44. Riverton project, Wyoming, financial adjustments.
45. Salt River project, Arizona, Land-pattern survey.
46. Yakima project, Sunnyside division, financial adjustments.

Alaskan investigations

47. Blue Lake project, Alaska.

REPORTS ON POTENTIAL PROJECTS SCHEDULED FOR COMPLETION IN FISCAL YEAR 1953

1. Baker project, Oregon, upper division.
2. Balmorhea project, Texas.
Central Valley project, (ultimate plan), California.
American River division.
3. Union Valley unit.
Sacramento River division.
4. Clikapudi unit.
5. Dixie project, Utah.
6. Fort Mohave project, Nevada.
7. Foster Creek project, Washington.

8. Fruitgrowers Dam project extension, Colorado.
9. Grande Ronde project, Oregon.
10. Kalispell project, Montana.
11. Moapa Valley project, Nevada.
12. Pendleton project, Oregon.
13. Rathdrum Prairie project, Idaho, Washington.
14. Rogue River Basin project, Oregon, talent division.
15. Victor project, California.

Mr. DIXON. There were some other things. May I be off the record for a moment.

Mr. KIRWAN. Of the record.

(Discussion off the record.)

SIZE OF PLANNING PROGRAM

Mr. DIXON. We also have a statement on the size of the planning program. That is, the number of investigations that have been underway each year on which, by the way, we have followed the committee's advice in reducing the number. For example, in 1951 we had 205 investigations underway. In 1952 we had 161. Next year, in 1953, we expect to have 123. So we are concentrating our efforts on the investigations program to finish up selected jobs and get the reports to the Congress.

Mr. KIRWAN. If you had that last year, we will insert it again this year.

(The statement referred to is as follows:)

SIZE OF THE PLANNING PROGRAM

The number of investigations included in the general investigations program has been very large because of the great need and widespread demand for these investigations. There is a constant demand from local and State interests throughout the West to continue investigations in progress or to initiate new investigations. This demand is inevitable because water is the most valuable single natural resource of the arid and semiarid West. The entire reclamation program lagged during World War II because of the necessity for the Nation to concentrate on the war effort. Since the war, despite advances made, economic developments in the West have failed to keep up with the population increases. The backlog of unfinished investigations was further increased when the Congress made an appropriation of only $2,500,000 for general investigations in fiscal year 1948 as against a budget estimate of $5,500,000; a large number of investigations had to be deferred at that time, many of which still remain on the shelf because it has not been possible to revive all of them to date.

Progress is being made in the completion of the investigations. During fiscal year 1950, 16 specific field investigations were completed, also 6 potential projects were authorized for construction. During fiscal year 1951, some 38 field investigations were completed, including all activities in the general investigations program; 6 projects were authorized by act of Congress, and 1 was authorized by a finding of feasibility by the Secretary of the Interior under reclamation law.

Because of the small appropriation for fiscal year 1952, a number of investigations previously scheduled to be resumed or initiated in fiscal year 1952, could not be included in the program. The total number of investigations in the program is being restricted in order to complete sooner each investigation that remains in the program. During the first half of fiscal year 1952, a report was completed and the Deer Creek power plant of the Provo River project was authorized by a finding of feasibility by the Secretary; the report on the Collbran project, Colorado, was transmitted to the Congress, and the report on the Fryingpan-Arkansas project was forwarded to the President. Several reports are under review by the affected States and interested Federal agencies.

The total number of field investigations of all types in the program in fiscal year 1951 was 205. This number is reduced to 161 in fiscal year 1952 and is estimated at 123 in fiscal year 1953, a reduction of 40 percent from the fiscal

year 1951 program. This includes several deferred investigations not active in fiscal year 1952 to be resumed in fiscal year 1953. Some 38 investigations of all types were completed in fiscal year 1951, 60 are scheduled for completion in fiscal year 1952, and it is estimated that 47 will be completed in fiscal year 1953 including five under advance planning.

BACKLOG OF PROJECTS

Mr. DIXON. One thing that you have had in the record each of the last several years is a statement on the backlog of projects. You would be interested to realize that 7 of the Bureau's projects represent 93 percent of our entire program; the other 45 projects that are authorized or under construction represent 7 percent of the program and a total investment when completed of $324 million.

Mr. KIRWAN. Do you mean the other 45?

Mr. DIXON. Yes, sir; which, if undertaken separately would be only about a year and a half's work.

Mr. KIRWAN. But they are principally for reclamation; there is not much power work in them or anything like that?

Mr. DIXON. I would say it was about a cross section; average.

Mr. KIRWAN. In the other 45?

Mr. DIXON. Yes, sir.

Mr. KIRWAN. What seven would represent 93 percent?

Mr. DIXON. The Canadian River project, the Central Valley project, the Columbia Basin project, Missouri River Basin project, the Palisades project, the Valley Gravity project, and the Weber Basin project. I bring it up to indicate to you that we are approaching a very bad distribution of projects throughout the country, and the situation will get worse progressively as we complete those other 45.

Mr. KIRWAN. We will insert the statement on backlog of projects at this point in the record.

(The statement referred to is as follows:)

The Bureau of Reclamation does not have either a widespread backlog of authorized projects or a backlog of unauthorized projects which are ready to go into construction.

The Bureau is now working on 44 projects (or parts of projects) including "Missouri River Basin projects," "Rehabilitation and betterment" and "Water conservation and utilization," each as one project, and there are 8 additional authorized projects upon which construction has not started. Seven of the total 52 projects (Canadian River, Columbia Basin, Central Valley, Missouri River Basin, Palisades, Valley Gravity, and Weber Basin) dollarwise, represent 93 percent of the entire authorized program. The total estimated cost of the remaining program for all of the other 45 projects is $324,000,000 or about 1½ year's work. The effect of this situation now is being felt, for many of the smaller projects are being completed, and a poor geographic distribution of projects among the States is beginning to develop rapidly.

Another way to appraise the need to expedite a sound and adequate investigation program is to realize that we are constructing the authorized projects at a rate of between $200,000,000 and $300,000,000 annually. New authorizations, for the past 6 years averaged less than $100,000,000 annually. Lack of an adequate investigation program has been resulting in completion of authorized work three times as fast as new work is started. Unless an adequate investigation program is established, the present rate of progress in the West will slow down or dry up, or projects are apt to become authorized upon the basis of less adequate data.

Under these conditions, a backlog of unauthorized projects does not ever develop, for the need is to start the new projects as soon as the plans are drawn. This is uneconomic, and does not allow the Congress to select from among alternative proposals.

Backlog of authorized construction left to complete

[Unit, millions of dollars]

Project and State	Total estimated cost	Estimated cost to June 30, 1952	Estimated cost to complete	Percent of remaining program
Total construction, all 52 authorized projects [1]	6,400	2,073	4,327	100
Canadian River project, Texas	85	0	85	2
Central Valley project, California	661	389	272	6
Columbia Basin project, Washington	703	443	260	6
Missouri River Basin project, Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Wyoming	3,430	312	3,118	72
Palisades, project, Idaho	77	5	72	2
Valley Gravity project, Texas	127	2	125	3
Weber Basin project, Utah	72	1	71	2
Subtotal, 7 projects	5,155	1,152	4,003	93
Remainder of program (45 projects)	1,245	921	324	7

[1] The 52 projects include "Missouri River Basin project," "Rehabilitation and betterment" and "Water conservation and utilization" each as 1 project.

Mr. DIXON. I think that is all of the material that the committee ordinarily requests.

RELATIONSHIP OF INVESTIGATIONS TO NATIONAL DEFENSE

Mr. KIRWAN. Under your engineering and economic investigations, tell us how each of the new project investigations relate to national defense.

Mr. DIXON. You are referring now to the 15 reports that are contemplated?

Mr. KIRWAN. Yes.

Mr. DIXON. They vary quite considerably in their relationship to national defense. Some of them have a direct bearing in their immediate locality and some have the tendency to strengthen the local economy and produce increased amounts of food. The projects that are on the tabulation inserted in the record previously are the Baker project in Oregon, the Balmorhea project in Texas; that latter one is to strengthen the economy of the area; the Central Valley project of California; the American River division—you are familiar with the Folsom Dam and the power plant that is already under construction which will be directly related to the defense effort, together with the utilization of the water in that highly developed area for agricultural purposes.

Mr. KIRWAN. Has the Baker project got anything to do with the Baker grand line, Idaho?

Mr. DIXON. Not to my knowledge except that the town is named Baker; the town of Baker, Oreg., is there.

Mr. KIRWAN. Is that the same point where Bonneville is requesting a line?

Mr. DIXON. If Bonneville has a transmission line in the area, which I do not doubt——

Mr. KIRWAN. The man from Bonneville who preceded you here said the line is necessary for national defense.

Mr. JACKSON. Yes; that is right.

Mr. DIXON. This could be. This is an irrigation project.

Mr. KIRWAN. That is not the same project?

Mr. DIXON. No; this is an irrigation project.

Mr. JACKSON. The other was a transmission line.

Mr. KIRWAN. But that was a connector. Is there any connection between those projects?

Mr. DIXON. None except that they may need power on those projects.

Mr. KIRWAN. That is not the project in connection with which he testified.

Mr. DIXON. That is right. The next on the list is the Dixie project. The project is a salvage operation in many respects. There is an irrigation economy there that is deteriorating, if I may say, rather unhappily.

The Fort Mojave project in Nevada is not as bad but is of the same character. The Foster Creek project in Washington is one that we hope will be related to the Chief Joseph Dam and is in that area up there where Chief Joseph is now under construction.

The Fruitgrowers Dam project extension in Colorado is an extension to an already-existing project.

The Grande Ronde project in Oregon is down in the lower end of the vicinity of the Grand Canyon of the Snake River.

The Kalispell project, in Montana, is an area that can be served by water from Hungry Horse. Hungry Horse is already under way.

Mr. KIRWAN. How many of them tie in with national defense? That is, how many of them do in a direct way?

Mr. DIXON. Except as they may serve for municipal and industrial water and production of power, for the most part these are to strengthen the economy of the area; in those ways they assist.

Mr. KIRWAN. That is the only way they tie in?

Mr. DIXON. That is right. The Central Valley, of course——

Mr. KIRWAN. We know about the Central Valley. We know there is a pinch.

Mr. DIXON. A considerable amount of power could be used there.

Mr. KIRWAN. That has been going on for years and years.

Mr. DIXON. This report is on the further extensions of the Central Valley project.

Mr. KIRWAN. That ties in with national defense, does it?

Mr. DIXON. There is power production to be available from a number of these projects.

Mr. KIRWAN. If there is power there and defense plants going up in the neighborhood, they tie in directly with national defense?

Mr. DIXON. I cannot tell you frankly where a defense plant is going to pop up tomorrow. That is my difficulty.

Mr. KIRWAN. If there is power there, and they are building factories for national defense, then they tie in with national defense?

Mr. DIXON. That is correct; only I could not answer you today as to what defense plants are going to be there next year or 2 years from now.

Mr. KIRWAN. A man testifying here from Bonneville stated no matter what projects you refer to in the Northwest, they tie into national defense. Dr. Raver testified to that.

Mr. DIXON. In the areas where we have power, the defense industries move right in; and the areas where we have water supplies are being much sought after because water is as essential as power.

FUTURE PROJECTS RELATED TO NATIONAL DEFENSE

Mr. KIRWAN. Have you any information on how the projects in the advance planning program fit into the defense picture?

Mr. DIXON. Yes, sir. We have several in the advance planning program. We have the Solano County project which is directly related, as far as we can see, to the defense program.

The Mare Island naval shipyard, Benecia Arsenal, the Travis Air Force Base, and a great many of the defense establishments in that part of California would be served by the project. The advance planning on that project should soon be completed. I have a statement on the status of that particular project here.

(The statement referred to is as follows:)

SOLANO PROJECT, CALIFORNIA

The Solano project was authorized on November 11, 1948, by a finding of feasibility of the Secretary of the Interior. The report was submitted to the President and Congress on November 11, 1948 and January 28, 1949, respectively.

The project is located largely in Solano County, Calif., which county adjoins the northeast extremity of San Francisco Bay. A part of the Monticello Reservoir area extends northwest into a portion of Napa County, Calif.

The project provides for a storage reservoir of approximately 1,600,000 acre-feet formed by a proposed concrete dam approximately 925 feet in crest length and 320 feet high located on Putah Creek below Monticello; a small diversion dam downstream; a 40-mile main canal; a small terminal reservoir; and the necessary wasteways, laterals, and drainage works. The estimated total cost of construction of the project is $38,745,000.

No construction funds have been expended on this project to date. General investigations funds are being used for advance planning and the definite plan report is scheduled for completion in fiscal year 1952. The project is not included in the President's construction budget for fiscal year 1953. However, need for construction of the project is urgent.

Increasing water shortages continue to face the proposed service area of the project. The cities of Fairfield, Suisun, and Vallejo, and the military installations of Travis Air Base, Benecia Arsenal, and the Mare Island Naval Shipyard are located in Solano County. These cities have had and continue to have rapid growth with the accompanying increased demand for water. Available water supplies are insufficient for the needs of these cities. The need for water at the present time for the city of Vallejo and the adjoining Mare Island Naval Shipyard is critical, as are the needs of the cities of Fairfield and Suisun and the Army Air Force Base at Travis Field.

Irrigation requirements are being partially met by pumping from the ground-water reserves. The present rate of withdrawal exceeds the rate of inflow ground-water reserve during the wettest year on record. The present ground-water level, despite an above normal rainy season, is lower than at any previous recorded period. Ground-water tables in southern Solano County continue to lower with consequent danger to existing irrigation enterprises. These needs are so urgent that new water supplies must be obtained.

This increased need for water and the present nonavailability of funds for Solano construction have caused the local water users to attempt, by various methods, a piecemeal approach to secure sources of additional water. The city of Vallejo, which furnished water to the large and expanding Mare Island Naval Shipyard, has been able to meet its water requirements only through importation of water from across Suisun Bay under purchase contract with East Bay Municipal Utility District. This contract expires in 1952 and the city has been advised it will have to make other arrangements for water. To this end the city held a bond election in April 1951, and approved a plan to finance a pipeline from Vallejo to connect with the Solano project at the terminal reservoir and to finance an extension of this line to Cache slough on the Sacramento River in the event the project was not constructed in time to furnish the necessary water supply. The bond issue, as passed, gave the local authorities the right to float bonds to cover the anticipated costs. It instructed the local officials to construct the filtration plant and that portion of the pipeline which was common to both plans, namely, the plan to utilize water from the Solano project, or to secure water from

Cache slough, an estuary of the Sacramento River. It gave the local officials full authority to award contracts for the facilities which were common to both plans, and, also gave the local officials authority to proceed with additional facilities from the far end of the common works, at what is called the Cordelia Y to either the terminal reservoir of the Solano project, or to Cache slough where a pumping plant would be built.

While the water supply from Cache slough had become available as a result of Shasta Dam, and was a part of the Central Valley project water supply, and as such, was committed ultimately to use elsewhere, the Bureau of Reclamation assisted the local officials in arranging to secure a sufficient supply to meet the municipal and defense needs, but could not properly grant a sufficient supply, also to meet the growing demands of agriculture which were heard from in various parts of the Solano County project area.

Since that time in fact on January 7, 1952, the city of Vallejo awarded a contract for construction of pipeline from Vallejo to Cache slough committing them to a sizable expenditure. Vallejo on the other hand has indicated in conferences with Bureau officials relating to purchase of water from Cache slough that they are willing to include provision that Bureau may supply water from either Cache slough or Monticello if construction of the Solano project is accomplished. However, some protection of the city's investment in the portion of the pipeline not common to both systems would have to be assured. This investment totals approximately 2½ million. The people of Solano County have now advised us that they are still anxious to obtain the construction of the Solano project at the earliest practicable date to meet the immediate agricultural requirements and long-term requirements of the municipalities and military installations and that they are currently actively engaged in seeking by every means possible a sound economic and financial solution of this project which will be equitable to both local users and the Federal Government.

Mr. DIXON. Yakima-Kennewick project as you appreciate is in the State of Washington and is located right near the Hanford engineering works. It will enlarge the power production at the power plant there and will make available lands for people to farm in the immediate vicinity of that rapidly growing community.

The American Falls power division is the installation of a power plant in an existing dam. The power will be available in the Northwest power pool and is very much needed.

Mr. JACKSON. Is that the third powerhouse at Coulee you are referring to?

Mr. DIXON. No, this is at the existing American Falls Dam, where they could put a powerhouse into the already existing dam. The North Side pumping division is the related irrigation in that same Snake River Valley.

NEED FOR AMOUNT REQUESTED

Mr. KIRWAN. The $5 million you are asking for here, do you think that every dollar is needed for general investigations?

Mr. DIXON. Yes, sir; I do.

Mr. KIRWAN. Do you think that you could help out on national defense and also the economy of the country if you are granted the $5 million?

Mr. DIXON. Yes, sir.

Mr. KIRWAN. Do you have any questions, Mr. Norrell?

PROJECTS ON WHICH INVESTIGATIONS ARE COMPLETED

Mr. NORRELL. Yes, sir. Do you know what the backlog is of projects where investigations have been completed? That is, how many projects do you have now the investigations of which are completed

and are now ready for construction if and when you secure construction funds with which to start the projects?

Mr. DIXON. Mr. Norrell, the list that I just read would cover that.

Mr. NORRELL. Just pick that out and give us the meat of it.

Mr. DIXON. I think it is a separate list already included in these materials I have turned in; but if not, I will separate them and put them in separately. There are about five of them.

Mr. NORRELL. Do you know how much money is involved in the construction of those projects, the complete projects? What would the total be? I would like to have the information picked out and inserted in the record so I won't have to do so much research work.

Mr. LINEWEAVER. We will insert that in the record.

(The information requested is as follows:)

Potential projects for which investigations have been substantially completed and feasibility report has been prepared

Project	*Total estimated cost*
Bitterroot project, Montana	$8, 979, 000
Cambridge Bench project, Idaho	544, 000
Canby project, Oregon	1, 074, 000
Central Arizona project, Arizona, New Mexico	788, 265, 000
Central Valley project (ultimate plan), California, Kings River division, North Fork Kings unit (initial development)	87, 853, 000
Collbran project, Colorado	13, 299, 000
Columbia Basin project, Washington, modification of Grand Coulee Dam for flood control	2, 750, 000
Council project, Idaho	1, 998, 000
Crooked River project, Oregon	5, 278, 000
Fryingpan-Arkansas project, Colorado (formerly called Gunnison-Arkansas project, Roaring Fork diversion, initial phase)	147, 440, 000
Mann Creek project, Idaho	1, 949, 000
Missoula Valley project, Montana, North Side unit	184, 000
Snake River project, Idaho, Oregon:	
Hells Canyon division	356, 810, 000
Mountain Home division	253, 243, 000
The Dalles project, Oregon, western division	2, 573, 000
Upper Star Valley project, Wyoming	3, 892, 000
Vale project, Oregon, Bully Creek extension	2, 846, 000
Total	1, 678, 977, 000

Mr. DIXON. I now have the tabulation I have already inserted into the record. I did not use it to answer your question because it includes the total estimated cost for the completed Missouri Basin project and I think that you are after——

Mr. NORRELL. Anyway, you can ascertain it and put it in there. You do not have to pick out the information now.

Mr. DIXON. I can give them to you now: The Canadian River project, $85 million. There is the Palisades Dam which is now just going under construction, $77 million. The Valley Gravity project in Texas, $127 million. The Weber Basin project in Utah, $72 million. The Solano project in California, $38 million. And I think that is all of them, sir, except the Yakima-Kennewick which is around $10 million and the Balmorhea project which is about $2½ million and——

Mr. NORRELL. You need not go into those smaller projects, just the major ones.

Mr. DIXON. If there are others, I will add them to the list. That is the character of it except that I have not included the Central Valley, which is still going ahead, and the Missouri Basin on which units are coming in one at a time.

Mr. NORRELL. Now, how many investigations do you think this amount you request for 1953 will complete so that they will be ready for construction? How many more?

Mr. DIXON. There will be no more, unless there are additional projects authorized for construction.

PROCEDURE IN DEVELOPMENT OF A PROJECT

Mr. NORRELL. When the project investigations are completed, they are then ready for construction?

Mr. DIXON. We make a project report. It has all the engineering factors, economic analyses and figures and data that are needed for us to ascertain, and for the Congress to ascertain, whether they want to go ahead with the project. It is sufficiently detailed to make a determination of feasibility. Following that, then, we make a more detailed report which we call advance planning, or definite plan report, before we actually go into construction.

PROJECTS IN ADVANCED PLANNING STAGE

Mr. NORRELL. Will the money you are requesting for advance planning get any of the projects ready for construction in the next fiscal year?

Mr. DIXON. There are 10 of them that will be completed. They are in various stages of completion now. Some of them are practically completed. They will be completed. None of these has so far been completed except one. The others are all going to be completed then with this money.

Mr. NORRELL. You do not need to read those out but I would like to have them inserted in the record at this point.

Mr. DIXON. We will do that.

(The information referred to is as follows:)

Authorized projects for which investigations are substantially completed but for which construction has not yet started

Projects in advance planning stage under general investigations:	*Total estimated cost*
Canadian River project, Texas	884, 656, 000
Middle Rio Grande project, New Mexico (exclusive of emergency channelization which is under construction)	27, 454, 600
Minidoka project, Idaho:	
American Falls power division	8, 097, 000
North Side pumping division	11, 901, 000
Provo River project, Utah, Deer Creek division, Deer Creek power plant	1, 400, 000
Solano project, California	38, 745, 000
Vermejo project, New Mexico	2, 679, 000
Weber Basin project, Utah	72, 313, 000
Yakima project, Washington Kennewick division	13, 206, 568
Total in advance planning	260, 452, 168
Missouri River Basin project:	
Bighorn Basin division, Wyoming:	
Bighorn unit	1, 441, 000
Bluff unit	555, 000
Hanover unit	2, 401, 000
Owl Creek unit	3, 388, 399
Shoshone extensions unit	42, 666, 000
Cheyenne division, Rapid Valley unit, South Dakota	8, 948, 000
Helena-Great Falls division, Montana, Helena Valley unit	4, 588, 000

Authorized projects for which investigations are substantially completed but for which construction has not yet started—Continued

Missouri River Basin project—Continued	
Lower Bighorn division, Montana, Wyoming, Yellowtail unit	$99, 586, 015
Marias division, Montana, lower Marias unit	60, 250, 000
Middle Loup division, Nebraska, Sargent unit	11, 163, 000
Missouri-Souris division, Montana, North Dakota, Missouri diversion unit	102, 212, 885
Montana pumping division, Montana:	
Charley Creek unit	249, 000
Nickwall unit	780, 000
North Dakota pumping unit, North Dakota, Painted Woods unit	1, 149, 000
Oregon Trail division, Wyoming, Glendo unit	42, 049, 157
Powder division, Montana, Wyoming:	
Kaycee unit, Wyoming	10, 080, 000
Moorhead unit, Montana, Wyoming	25, 530, 000
Yellowstone division, Montana, North Dakota:	
Colgate unit, Montana	449, 000
Elm Coulee unit, Montana	495, 000
Seven Sisters unit, Montana	1, 418, 000
Sidney unit, Montana, North Dakota	710, 728
Stipek unit, Montana	1, 616, 000
Total, Missouri River Basin project	421, 725, 184
Central Valley project, California:	
American River division, Sly Park unit	6, 122, 500
Delta division, Delta steam-electric power plant	55, 969, 000
Sacramento River division, Sacramento canals unit	58, 400, 000
Total, Central Valley project	120, 491, 500
Grand total	802, 668, 852

HOW PROJECTS IN PLANNING STAGE RELATE TO NATIONAL DEFENSE

Mr. NORRELL. When you get down to connecting a project with national defense, when it is in the planning or advance planning stage, that is quite a different job, is it not? There is one thing we can be sure of and that is when you strengthen the economy of a certain area that naturally will help the defense of the country. But outside of that, the rest is pretty much assumption, is it not?

Mr. DIXON. Yes and no. There are certain very tangible ways that you can judge it. For example, this Weber Basin project that was mentioned a moment ago. The ground water level in the area served has gone down rather terrifically in the last few years so that it will be below the shores of the Great Salt Lake. If the salt water ever breaks through into that subterranean aquifer, the defense effort is going to be materially injured. On the same side of the same ledger, the project will furnish essential water supply to the populations that operate the defense establishments right; and they have some of the largest supply depots in the United States in the Salt Lake area because it can serve the Northwest, the areas straight west, and the areas in the Southwest, all about equal distance.

Mr. NORRELL. Mr. Chairman, I would like, to go off the record if I may.

(Discussion off the record.)

Mr. KIRWAN. Mr. Furcolo, any questions?

NECESSITY OF INVESTIGATIONS

Mr. FURCOLO. As I understand it, you say all these investigations are necessary looking toward the defense effort?

Mr. DIXON. No. I think the question the chairman asked was, what relation did they have to the defense effort.

Mr. FURCOLO. The question I want to ask is, Are these necessary in connection with the defense effort?

Mr. DIXON. They are, in varying degrees; yes, sir. You could not say that all of them were defense projects except insofar as they stabilize the economy, furnish municipal water for defense industries, even though they may be small or large, and they furnish power.

DETERMINING PROJECTS ESSENTIAL TO DEFENSE

Mr. FURCOLO. What I wanted to ask is this, Who says they are essential in the defense effort?

Mr. DIXON. There is not anybody who is clothed with authority to make that determination at the present time.

Mr. FURCOLO. Well, in addition to someone in the Department of the Interior, has anyone else said such and such is or is not?

Mr. DIXON. Yes; in specific cases.

Mr. FURCOLO. Anyone in the Defense Department?

Mr. DIXON. Yes. The commanding general of all the Armed Forces in Alaska has written a letter which I think has already been inserted in the record previously, stating that the Eklutna project will contribute to the defense of them up there, through power for——

Mr. FURCOLO. With reference to all these investigations, can that same characterization be made of all of them or only some of them?

Mr. DIXON. Just the ones that have a direct relationship. I think I should explain one thing, and I would like to say it off the record, Mr. Chairman——

(Discussion off the record.)

INVESTIGATIONS NOT RECOMMENDED BY THE DEFENSE DEPARTMENT

Mr. FURCOLO. Without stating why they recommended them, has the Defense Department recommended these investigations?

Mr. DIXON. Not all of these, no; but on some of them they have collaborated very closely with us. The second barrel of the San Diego aqueduct is one on which there is legislation now for the Navy to undertake it. And we have done all the engineering work for them on that.

Mr. FURCOLO. I do not want to burden you now but I was wondering, Mr. Chairman, if they might submit a list of those that the Defense Department has not recommended.

Mr. DIXON. They do not generally recommend for or against projects. They like to stay completely away from it.

Mr. FURCOLO. I realize they do. But on the other hand, if they are basically interested, as I know they are in defense, I can readily see why as a practical matter, for the reasons you have outlined, there may be some that they are naturally going to want to stay away from.

Mr. DIXON. They desire to stay away from all of them, all civilian projects.

Mr. FURCOLO. On the other hand, how much do they want to stay away from all of them? If they are vitally interested as they should be, they are really defense, they ought to be willing to make a recommendation and they can do it in language such that it is not going to call upon them to use any of their own money, I assume. I do not know how the other members feel and I can only speak for myself, but it puts the committee in a rather difficult position if in theory we are just spending money where it is vitally connected with the defense efforts and, while you have certain tangibles that we have gone into, it is very difficult on the floor of the Congress to explain why it is that the Defense Department, which theoretically may be responsible for this defense effort, pays so little attention to the matter that they will not even recommend one way or the other.

Now, obviously we can use part of the explanation you have given as to why they may not want to in some instances. But it seems to me they also could make a statement that would not tie them in as far as any money is concerned and still would indicate very clearly that they do recommend or they do not.

Mr. DIXON. Generally, because of their position on the matter, we have not asked them.

Mr. FURCOLO. I think you should; speaking for myself.

Mr. DIXON. The machinery that they have to use in order to make such a statement is extremely complicated. They have in the Army-Navy Munitions Board a group consisting of Army, Navy, and Marine Corps and Air Corps officials. In order for a project to be considered by the Armed Forces as essential or nonessential, each of those groups has to make a report on it, and it goes through each of their whole staffs, and then comes together in this coordinating forum, if that is the proper way to describe it, and if they then conclude that it is of vital interest to one or more of them, they may or may not come out with a reply. It has been a most difficult thing, even on the cases where we have tried to get their point of view.

Mr. FURCOLO. I do not mean to interrupt you, but let me ask you this question. I assume from most of those things you have to come to a conclusion whether it is or is not intimately tied in with the defense effort, in line with the President's own viewpoint; is that correct?

Mr. DIXON. No. We are not required to do that because among other things, the President has said again in his economic message and just recently, and I think that the Commissioner paraphrased it to you, that the Nation cannot win by just building armaments, it must build and strengthen its own economy.

DETERMINING PROJECTS TO BE UNDERTAKEN

Mr. FURCOLO. We all agree on that. But let me ask you this: In determining what money you are going to ask for and what projects you are going to put into effect or you want to put into operation, do you or do you not have in mind that you are not going to put any into effect, and you are not going to ask for any money, for any projects unless they are directly and intimately tied in with the defense effort?

Mr. DIXON. That is not the policy.

Mr. FURCOLO. That is all right. I just wanted to know whether that was or was not the policy.

Mr. LINEWEAVER. Or the maintenance of essential civilian economy. That is another major factor, Mr. Furcolo.

Mr. FURCOLO. What I am interested in—and I don't offer this as a criticism—is whether this is being offered to us as directly and intimately tied to the defense effort or, as you just pointed out, something that may be essential to the civilian economy. It may make a difference on the floor as to how Members want to vote on amendments.

PROJECTS ENDORSED BY ARMED FORCES

Mr. STRAUS. Would it be helpful to you if we stated it in a positive form? All these projects and programs in which there is a positive and direct armed services endorsement, that is true of a number of them.

Mr. FURCOLO. That would be very helpful, particularly on the floor, in my opinion.

Mr. STRAUS. I think we could do that.

Mr. FURCOLO. Rather than just the Interior Department recommending this, or Congressman Jones recommends it; this is being recommended by the people who are responsible for the defense effort.

Mr. STRAUS. It does happen we can give you such a list.

Mr. DIXON. The Defense Department frankly did not want to do so and have avoided doing so.

Mr. MARKWELL. I would like to amplify the remarks of Mr. Dixon and point out that on all of our projects which we now have going that the NPA and the DPA have made allocation of critical materials. I think perhaps that is the most positive endorsement that we have had.

Mr. FURCOLO. Thank you.

(The information referred to is as follows:)

The reclamation program is related to national defense in several ways, both directly and indirectly. The primary direct relationships concern (1) the Armed Forces where water and power from reclamation projects serve military installations, (2) defense industry which also utilizes water and power from reclamation undertakings, and (3) the defense agencies which control the allocation of scarce materials and agencies such as Defense Electric Power Administration which is concerned with power supply for defense purposes. The principal indirect relation is found in the broad beneficial effects of reclamation projects in stabilizing regional economies, particularly in areas where economic conditions fluctuate widely because of defense activities, in providing employment opportunities to broaden the national economic base that supports national defense activities, and in producing food and fiber for defense and civilian requirements.

The cumulative total of these relationships and effects is significant in the support of national defense and elements of all of these relationships are commonly found in many reclamation projects. It is the exception, however, rather than the rule that one phase will be of such importance as to justify seeking certification of a project as essential to the national defense. Recognition of the value of reclamation projects to national defense is widespread and several expressions to that effect have been made by various national defense interests, both as to overall programs and specific projects. Typical of these are the following:

ALASKA

The commander in chief of the Headquarters, Alaskan Command, Lt. Gen. N. F. Twining, indicated broad support for development of programs of the Department of the Interior in Alaska by letter of November 19, 1948. In this he stated

"My responsibility as the unified commander of the armed services in Alaska requires that I examine all of the factors which affect the National Military Establishment within the Territory. It is quite evident that the over-all defense of Alaska depends upon two closely interrelated factors, the military facilities and installations available to the Armed Forces and the civil resources of the Territory." Following a summary of how the programs of the Department, including those of the Bureau of Reclamation for development of hydroelectric power and other purposes, would strengthen the internal economy of Alaska and implement the military program, he concluded "I have outlined these matters because of my knowledge that any increase in the economic development of the Territory of Alaska will result in a more adequate defense for the Territory and for the United States at a lesser cost in men, money, and materials. You may be assured that this command will support any practicable program to effect this end."

EKLUTNA PROJECT, ALASKA

The Eklutna project, now under construction by the Bureau of Reclamation in Alaska, had the strong support of the Headquarters Alaskan Command in the development and authorization of the project. By letter of September 2, 1948, to the Bureau of Reclamation, Lt. Gen. N. F. Twining, commander in chief, Headquarters Alaskan Command, stated "The Alaskan Command Headquarters is familiar with the general objectives of the Eklutna hydroelectric project. It recognizes that subject project is intended primarily for development of civilian economy in the Anchorage-Matanuska Valley area. However, due to its potential value for military purposes, the Alaskan Command is in sympathy with a proposal for early action by Congress in order that construction may be undertaken at an early date."

SOLANO PROJECT, CALIFORNIA

The authorized Solano project would, among other things, provide a source of water supply for several military installations including the Mare Island Navy Yard, the Benicia Army Arsenal, and the Air Transport Command Base at Suisun. The importance of this project for providing water supply to these military installations has been strongly emphasized by the Navy Department, Department of the Army, the Air Force, the Munitions Board, and the Department of Defense. Top officials of all of these agencies including former Secretary Forrestal of the Department of Defense have supported this project either through testimony at appropriation hearings or in letters of endorsement.

LOWER NUECES RIVER PROJECT

The lower Nueces River project is a proposed project, the report on which is now being reviewed by the State of Texas and Federal agencies, prior to its transmittal to Congress. The principal purpose of the project is to provide a water supply for the city of Corpus Christi. Inasmuch as the water requirements of important naval establishments are served by the city of Corpus Christi, the Navy Department is interested in the project. The Assistant Secretary of the Navy, by letter of November 14, 1950, indicated that the Navy Department would support this project in testimony before the Congress.

SAN DIEGO AQUEDUCT, SECOND BARREL

The Navy Department has been authorized to construct the second barrel of the San Diego aqueduct for the purpose of providing water supply to the city of San Diego. One of the important justifications for this project is the serving of naval installations at San Diego. The Bureau of Reclamation is acting as design and construction agency for the Navy Department and will make the designs and supervise construction of the project for the Navy Department.

Defense industry is a prime beneficiary of reclamation undertakings especially heavy power-consuming industries. The role of Hoover, Grand Coulee, Shasta, and other major Bureau dams and power plants in supplying power for defense purposes needs no elaboration. Other such projects now planned including the Hells Canyon, Glen Canyon, and Trinity River plants will make similar contributions. The President has recognized the importance of the Hells Canyon development, both in his budget message to the Congress for fiscal year 1952 and again for fiscal year 1953 by stating that an $8,000,000 supplemental appropriation will be requested to assure initiation of construction at the earliest date if the project is authorized during the fiscal year.

A further measure of the importance of reclamation works to defense activities is the high priorities for materials given to Bureau construction, particularly, as pertains to its power construction program. Without such priorities, the availability of materials rather than appropriations would be the limiting factor in determining the size of reclamation's program.

PROJECT INVESTIGATIONS IN ALASKA

Mr. JENSEN. How much do you propose to spend on Alaska for investigations?

Mr. DIXON. $250,000.

Mr. JENSEN. On what project?

Mr. DIXON. Susitna project, Devil Canyon, is one of them under investigation. The Eklutna, of course, is in the construction stage at the present time. The Yukon Basin, Wickersham project, and the Blue Lake project.

Mr. JENSEN. Where is the Susitna project?

Mr. DIXON. On the main west coast just above where the panhandle goes down along the west coast of Canada. The Susitna River is one of the finest power-producing streams in the whole northwest area of either Canada or the United States.

It is, in terms of distance, I would say 800 miles north of Juneau, something approximating that, almost straight north of Anchorage. I mentioned the Blue Lake also——

INVESTIGATION OF BLUE LAKE PROJECT

Mr. JENSEN. Where is Blue Lake?

Mr. DIXON. Right near Sitka. They have, incidentally, a new paper mill going up there now, and the paper mill, we understand, has been granted priorities for the materials because of the needs for paper and the threat of being cut off from our Scandinavian supplies of pulpwood. The paper mill needs power from the Blue Lake project and they are counting on the Blue Lake project to provide the power. It is one of these glacier-fed lakes, high in the coastal range with a very heavy drop down to the immediate sea.

Mr. JENSEN. How many kilowatts do you propose to produce at Blue Lake.

Mr. DIXON. 15,000, sir.

Mr. JENSEN. That is a very small amount of power. How much money do you expect to spend.

Mr. DIXON. $75,000, on the investigation.

Mr. JENSEN. $75,000 on the investigation?

Mr. DIXON. One thing we have to be awfully careful about is whether or not there is a suitable foundation situation. On the Susitna that you asked about, 1,250,000 kilowatts.

Mr. JENSEN. You expect to spend $75,000 on investigations for a dam that will only produce 15,000 kilowatts at Blue Lake.

Mr. DIXON. 15,000 kilowatts is more power than there is within some distance of there.

Mr. JENSEN. I realize that but it is a small dam.

Mr. DIXON. The geology up there in that part of the Alaskan coast is one that has caused us considerable anguish already. We feel that it would be safer to make an adequate set of drilling explorations there so that we can present to the Congress a firm estimate.

Mr. JENSEN. I certainly agree with you. It just struck me as being a lot of money to just spend for investigations for 15,000 kilowatts. But certainly I do not want to get in the same trouble we got in on one dam. What was the name of that dam where we had to spend $10 million to pound cement into faults in the rock?

Mr. LINEWEAVER. Davis Dam.

Mr. DIXON. Well, that represents about $6 per kilowatt in investigations. A kilowatt installed in Alaska will cost $400 to $500 so it is representing really about 1 or 1½ percent of the cost per kilowatt, which is a very nominal portion of the cost for the investigation. A kilowatt in this country costs $250 to $400 for installed capacity. Up in Alaska it costs about double. So it is actually only 1 or 2 percent at the most for the cost of the investigations.

Mr. JENSEN. All right. Do you anticipate that a dam will bring in sufficient revenue to pay the bill?

Mr. DIXON. Yes, sir: we do.

Mr. JENSEN. In what way?

Mr. DIXON. I do not think it has been finally determined but it is around 9 or 10 mills, something like that, in that general neighborhood.

INVESTIGATION OF SUSITNA PROJECT

Mr. JENSEN. That other dam, Susitna, what are you spending on that for investigations?

Mr. DIXON. That is a very large investigation. It is about $250,000 total. Yes; that is it.

Mr. JENSEN. How many kilowatts?

Mr. DIXON. 1,250,000 kilowatts there, sir.

Mr. JENSEN. That is a good-sized one.

Mr. DIXON. That is very large. That is a terrifically steep and deep canyon.

Mr. JENSEN. And you figure that $250,000 will be enough to cover the cost of investigation on that?

Mr. DIXON. That will be enough to ascertain whether or not a project should be recommended. There will have to be more elaborate and detailed investigations of that after that.

Mr. JENSEN. That is just to investigate the feasibility. That is not investigating the soundness of the site.

Mr. DIXON. Yes, that is right; just feasibility.

Mr. JENSEN. Or the rock formation underneath or anything else.

Mr. DIXON. That is correct. It is the whole basin investigation with particular emphasis on Devil Canyon. The Susitna Basin. It has a canyon which is not of the same geological character as the Grand Canyon, but of that general type, a very deep canyon and a steep channel.

Mr. JENSEN. That will be power only.

Mr. DIXON. Essentially. That is the crying need in Alaska at the moment.

Mr. JENSEN. Well, I certainly am in no position to go against any proper amount for investigations because I was the fellow that squealed for power in Alaska from hydroelectric dams.

Mr. DIXON. Very essential.

Mr. JENSEN. I want you to know that I am glad that you are up there and at it. I am glad to know that you got your dam about completed.

Mr. DIXON. Well under way. It is on schedule roughly. That will be brought on under construction projects.

Construction and Rehabilitation

Amounts available for obligation

	1951 actual	1952 estimate	1953 estimate
Appropriation or estimate:			
Reclamation fund, special fund	$23,219,965	$29,257,650	$49,155,000
General fund	220,513,035	178,795,075	145,565,000
Total appropriation or estimate	243,733,000	208,052,725	194,720,000
Applied to contract authorization	−4,595,700	−1,000,000	
Proposed transfer to "General administrative expenses, Bureau of Reclamation," to meet pay increases		−300,000	
Prior year balance available:			
Appropriation	58,757,543	33,287,016	21,660,813
Contract authorization	11,189,700	6,594,000	
Balance transferred to "Operation and maintenance, Bureau of Reclamation" pursuant to Public Law 759	−24,956		
"Office of the Secretary, salaries and expenses, defense production activities, Interior," pursuant to sec. 1312, Public Law 253		−250,000	
Reimbursements from non-Federal sources		1,000,000	1,200,000
Reimbursements from other accounts	946,880	887,624	927,100
Total available for obligation	310,006,467	248,271,365	218,507,913
Balance available in subsequent year:			
Appropriation	−33,287,016	−21,660,813	−889,017
Contract authorization	−6,594,000		
Rescission of contract authorization, Public Law 136		−5,594,000	
Obligations incurred	270,125,451	221,016,552	217,618,896

NOTE.—Reimbursements from non-Federal sources shown above are from the reclamation trust fund for improvement of the flood-protective system near Yuma, Ariz. in accordance with Mexican Water Treaty of 1944.

Obligations by activities

Description	1951 actual	1952 estimate	1953 estimate
Direct Obligations			
1. Eklutna project, Alaska	$1,099,120	$5,762,280	$13,000,000
2. Gila project, Arizona	6,142,267	7,076,152	5,582,000
3. All-American Canal, Arizona-California	1,759,607	2,259,521	1,509,987
4. Parker Dam power project, Arizona-California	−9,772		
5. Colorado River front work and levee system, Arizona-California-Nevada	433,454	2,419,069	3,207,000
6. Boulder Canyon project, Arizona-Nevada	9,128,989	2,625,415	435,000
7. Davis Dam project, Arizona-Nevada	12,391,161	7,169,088	3,282,661
8. Cachuma project, California	8,590,966	10,331,455	8,500,000
9. Central Valley project, California	42,170,680	29,437,914	40,000,000
10. Kern River project, California	21,087	67,500	41,085
11. Kings River project, California	2,636	28,000	34,000
12. Colorado-Big Thompson project, Colorado	17,182,987	21,536,482	19,000,000
13. Grand Valley project, Colorado	2,294		
14. Paonia project, Colorado	521,116	37,989	
15. Pine River project, Colorado	−219	−1,000	
16. San Luis Valley project, Colorado	2,250,537	214,582	312,221
17. Boise drainage (Kuna irrigation district), Idaho	2,704	5,000	5,000
18. Boise project, Idaho, Anderson Ranch dam	771,541	290,000	276,058
19. Boise project, Idaho, Payette division	632,251	317,581	215,000
20. Lewiston Orchards project, Idaho	172,265	25,858	10,911
21. Minidoka project, Idaho, Gooding division	7,452	7,500	12,500
22. Palisades project, Idaho	67,315	2,205,421	10,000,000
23. Preston Bench project, Idaho	592		
24. Rathdrum Prairie project, Idaho, Hayden Lake unit	1,115		
25. Buffalo Rapids project, Montana, first division	61,324	78,402	222,000
26. Buffalo Rapids project, Montana, second division	130,217	94,585	111,000
27. Fort Peck project, Montana	1,978,256	1,450,099	321,000
28. Hungry Horse project, Montana	28,649,172	22,250,828	13,245,000
29. Milk River project, Montana, Fresno Dam	31,822	25,585	
30. Sun River project, Montana	38,416	35,984	40,000
31. Carlsbad project, New Mexico	51,880	1,346	
32. Fort Sumner project, New Mexico	1,697,733	72,952	
33. Middle Rio Grande project, New Mexico		1,463,000	
34. Tucumcari project, New Mexico	326,990	220,304	354,000
35. Vermejo project, New Mexico		60,000	
36. Rio Grande project, New Mexico-Texas	1,047,274	1,280,664	161,118
37. W. C. Austin project, Oklahoma	219,661	178,740	30,000
38. Arnold project, Oregon	21,356		

Obligations by activities—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
Direct Obligations—Continued			
39. Deschutes project, Oregon, north unit	$182,299	$340,156	$174,643
40. Grants Pass project, Oregon	5,502		
41. Ochoco project, Oregon	1,112	17,082	4,287
42. Vale project, Oregon	7,710		
43. Kalmath project, Oregon-California	745,444	511,773	368,000
44. Owyhee project, Oregon-Idaho	512		
45. Valley Gravity project, Texas	2,317	24	
46. Ogden River project, Utah	30,857		
47. Provo River project, Utah	4,368,675	2,804,072	2,310,000
48. Columbia Basin project, Washington	46,447,047	26,869,457	20,917,754
49. Yakima project, Washington, Roza division	185,740	65,922	151,500
50. Eden project, Wyoming	598,604	1,900,000	760,000
51. Kendrick project, Wyoming	1,018,933	2,827,058	4,100,000
52. Riverton project, Wyoming	2,083,214	1,649,981	537,000
53. Shoshone project, Wyoming	351,186	464,191	287,651
54. Missouri River Basin project:			
Phase A, units ready for or under construction:			
Bighorn Basin division, Owl Creek unit, Wyoming	41,850	91,739	
Bostwick division, Nebraska-Kansas	2,540,499	3,558,157	3,965,000
Boysen division, Boysen unit, Wyoming	6,656,659	2,152,470	810,000
Cannonball division, Cannonball unit, North Dakota	−50,505	7,777	
Cheyenne division:			
Angostura unit, South Dakota	1,221,335	1,196,541	1,158,000
Keyhole unit, Wyoming	1,360,253	983,447	
Frenchman-Cambridge division, Nebraska	10,928,266	8,679,597	3,543,000
Grand division, Shadehill unit, South Dakota	1,014,052	113,930	26,000
Heart division:			
Dickinson unit, North Dakota	28,513	26,853	
Heart Butte unit, North Dakota	38,200	187,411	435,000
Helena-Great Falls division, Canyon Ferry unit, Montana	4,134,199	8,905,801	4,754,000
Lower Bighorn division, Yellowtail unit, Montana		280,762	
Marias division, Lower Marias unit, Montana	444,889	506,111	
Missouri-Souris division:			
Jamestown unit, North Dakota		650,976	1,000,000
Missouri diversion unit, Montana	332,600	313,458	
Moreau division, Bixby unit, South Dakota	−20,950	6,000	
North Dakota pumping division, Fort Clark unit, North Dakota	33,714	425,344	57,000
Oregon Trail division:			
Glendo unit, Wyoming	−205,728	407,002	100,000
Kortes unit, Wyoming	1,235,165	96,317	
Smoky Hill division, Cedar Bluff unit, Kansas	5,589,425	−394,753	483,622
Solomon division:			
Glen Elder unit, Kansas			3,620,000
Kirwin unit, Kansas		2,625,311	6,000,000
South Platte division, Narrows unit, Colorado	50,832	198,253	50,915
Three Forks division, Crow Creek pump unit, Montana		140,146	500,000
Transmission division, various	20,503,531	16,038,466	27,746,000
Upper Republican division, St. Francis unit, Colorado-Kansas	3,282,341	71,301	154,202
Yellowstone division:			
Cartwright unit, North Dakota	6,625	105,372	29,200
Sadie Flat unit, Montana	21,482	16,161	
Savage unit, Montana	50,488	4,953	2,000
Sidney unit, Montana	11,835	37,000	17,298
Subtotal, phase A	58,649,570	47,431,903	54,451,237
Phase B, units being prepared for construction	3,354,429	3,101,964	1,775,837
Phase C, continuing work on the general plan of development	3,325,774	3,861,116	2,329,055
Phase D, work in connection or in cooperation with Corps of Engineers	48,466	89,845	78,000
Phase E, operation and maintenance			1,060,000
Other Department of the Interior agencies	6,722,075	5,797,421	5,000,000
Total, Missouri River Basin project	72,100,314	60,282,249	64,634,129
55. Rehabilitation and betterment of existing projects	3,390,080	3,322,223	2,539,291
56. Water conservation and utility projects	62,779	46,417	
Total direct obligations	269,178,571	220,128,928	216,691,796

Obligations by activities—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
Obligations Payable Out of Reimbursements From Other Accounts			
2. Gila project, Arizona	$618		
6. Boulder Canyon project, Arizona-Nevada	200	$10,000	$10,000
7. Davis Dam project, Arizona-Nevada	34,066	1,700	1,100
8. Cachuma project, California	609		
9 Central Valley project, California	16,194		
14. Paonia project, Colorado		2,000	
15. Pine River project, Colorado		1,000	
18. Boise project, Idaho, Anderson Ranch Dam	164		
19. Boise project, Idaho, Payette division	5,271		
27. Fort Peck project, Montana	2,185		
39. Deschutes project, Oregon, north unit	7,902	4,500	
43. Klamath project, Oregon, California	21,978	15,000	10,000
47. Provo River project, Utah		1,000	
48. Columbia Basin project, Washington	27,695	20,000	15,000
52. Riverton project, Wyoming	931		
54. Missouri River Basin project	66,178	30,424	42,500
55. Rehabilitation and betterment of existing projects	17	1,000	
56. Water conservation and utility projects	80	1,000	
57. Services to otner agencies, Denver, Colo., office	762,792	800,000	848,500
Total obligations payable out of reimbursements from other accounts	946,880	887,624	927,100
Obligations incurred	270,125,451	221,016,552	217,618,896

Obligations by objects

Object classification	1951 actual	1952 estimate	1953 estimate
BUREAU OF RECLAMATION			
Summary of Personal Services			
Total number of permanent positions	$16,575	$12,264	$11,126
Full-time equivalent of all other positions	280	139	110
Average number of all employees	12,822	10,099	10,012
Average salaries and grades:			
General schedule grades:			
Average salary	$3,829	$4,444	$4,503
Average grade	GS-6.0	GS-6.5	GS-6.6
Crafts, protective, and custodial grades:			
Average salary	$2,777	$3,174	$3,293
Average grade	CPC-4.5	CPC-4.7	CPC-5.0
Ungraded positions: Average salary	$3,709	$3,611	$3,555
Personal service obligations:			
Permanent positions	$48,552,939	$43,642,420	$43,189,833
Part-time and temporary positions	921,325	526,952	409,408
Regular pay in excess of 52-week base		167,864	180,558
Payment above basic rates	1,452,437	1,419,814	1,239,653
Total personal service obligations	50,926,701	45,757,050	45,019,452
Direct Obligations			
01 Personal services	50,139,976	45,045,480	44,245,952
02 Travel	1,751,192	1,848,456	1,744,152
03 Transportation of things	4,466,828	3,611,179	2,218,517
04 Communication services	471,464	519,440	459,848
05 Rents and utility services	1,203,735	1,038,495	909,386
06 Printing and reproduction	397,156	490,363	402,407
07 Other contractual services	2,635,263	6,461,133	13,432,334
Services performed by other agencies	477,138	426,267	289,008
08 Supplies and materials	20,034,827	19,984,950	18,715,111
09 Equipment	4,779,782	4,543,340	2,749,839
10 Lands and structures	176,772,656	130,917,797	127,409,318
11 Grants, subsidies, and contributions	156,164	285,000	5,000
13 Refunds, awards, and indemnities	104,329	13,593	11,130
15 Taxes and assessments	44,121	81,947	80,801
Subtotal	263,434,631	215,267,440	212,672,803
Deduct charges for quarters and subsistence	995,034	938,657	981,007
Total direct obligations	262,439,597	214,328,783	211,691,796

Obligations by objects—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
BUREAU OF RECLAMATION—continued			
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	$786,725	$711,570	$773,500
02 Travel	214	100	100
03 Transportation of things	135	150	100
04 Communication services	385		500
05 Rents and utility services	632	104	1,500
07 Other contractual services	43,696	127,200	113,000
08 Supplies and materials	36,597	20,750	14,600
09 Equipment	19,047	4,450	500
10 Lands and structures	32,369	1,300	1,300
Total obligations payable out of reimbursements from other accounts	919,800	865,624	905,100
Obligations incurred	263,359,397	215,194,407	212,596,896
ALLOCATION TO BUREAU OF LAND MANAGEMENT			
Summary of Personal Services			
Total number of permanent positions	51	53	51
Full-time equivalent of all other positions	35	35	32
Average number of all employees	68	70	65
Average salaries and grades:			
General schedule grades:			
Average salary	$3,867	$4,203	$4,238
Average grade	GS–6.5	GS–6.4	GS–6.3
Personal service obligations:			
Permanent positions	$176,609	$186,290	$200,970
Part-time and temporary positions	54,164	55,000	52,000
Regular pay in excess of 52-week base		500	500
Payment above basic rates	145		
Total personal service obligations	230,918	241,790	253,470
Direct Obligations			
01 Personal services	215,504	220,190	231,870
02 Travel	55,649	55,000	26,600
03 Transportation of things	11,029	10,000	2,000
04 Communication services	2,696	2,000	1,000
05 Rents and utility services	11,140	2,500	1,000
06 Printing and reproduction	142	6,000	2,000
07 Other contractual services	15,113	15,245	15,000
08 Supplies and materials	211,000	72,000	35,530
09 Equipment	20,552	10,000	10,000
13 Refunds, awards, and indemnities	10		
Total direct obligations	542,835	392,935	325,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	15,414	21,600	21,600
02 Travel	4,519	400	400
03 Transportation of things	199		
04 Communication services	15		
07 Other contractual services	909		
08 Supplies and materials	2,254		
09 Equipment	6		
Obligations payable out of reimbursements from other accounts	23,316	22,000	22,000
Obligations incurred	566,151	414,935	347,000
ALLOCATION TO BUREAU OF MINES			
Summary of Personal Services			
Total number of permanent positions	37	38	29
Full-time equivalent of all other positions	2	2	2
Average number of all employees	33	31	26
Average salaries and grades:			
General schedule grades:			
Average salary	$4,730	$5,088	$5,040
Average grade	GS–8.1	GS–7.9	GS–7.9
Ungraded positions: Average salary	$2,331	$2,331	$2,331

Obligations by objects—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
ALLOCATION TO BUREAU OF MINES—continued			
Direct Obligations			
01 Personal services:			
Permanent positions	$145,780	$149,800	$123,010
Part-time and temporary positions	7,046	4,000	5,000
Regular pay in excess of 52-week base		600	490
Total personal services	152,826	154,400	128,500
02 Travel	15,409	8,000	10,000
03 Transportation of things	1,721	700	500
04 Communication services	550	400	400
05 Rents and utility services	4,253	3,000	3,000
06 Printing and reproduction	175	175	200
07 Other contractual services	1,979	1,400	1,400
08 Supplies and materials	14,914	4,000	4,000
09 Equipment	15,713	2,708	2,000
10 Taxes and assessments	115		
Total direct obligations	207,655	174,783	150,000
Obligations Payable Out of Reimbursements From Other Accounts			
08 Supplies and materials	1,610		
Obligations incurred	209,265	174,783	150,000
ALLOCATION TO FISH AND WILDLIFE SERVICE			
Total number of permanent positions	87	73	64
Full-time equivalent of all other positions	5	3	5
Average number of all employees	88	70	65
Average salaries and grades:			
General schedule grades:			
Average salary	$4,036	$4,540	$4,557
Average grade	GS–6.9	GS–6.8	GS–6.7
Crafts, protective, and custodial grades:			
Average salary	$2,464	$2,843	$2,923
Average grade	CPC–4.0	CPC–4.0	CPC–4.0
01 Personal services:			
Permanent positions	$375,731	$366,386	$283,021
Part-time and temporary positions	30,883	25,075	18,090
Regular pay in excess of 52-week base		1,506	1,089
Payment above basic rates	1,494	1,500	700
Total personal services	408,108	394,467	302,900
02 Travel	43,019	34,600	31,600
03 Transportation of things	1,800	1,550	1,500
04 Communication services	3,920	4,000	4,000
05 Rents and utility services	13,344	13,500	13,500
06 Printing and reproduction	2,486	2,500	3,000
07 Other contractual services	24,043	16,500	20,000
08 Supplies and materials	18,049	14,000	15,000
09 Equipment	18,377	5,500	8,500
Obligations incurred	533,146	486,617	400,000
ALLOCATION TO GEOLOGICAL SURVEY			
Total number of permanent positions	685	595	510
Full-time equivalent of all other positions	200	112	96
Average number of all employees	835	646	580
Average salaries and grades:			
General schedule grades:			
Average salary	$4,008	$4,390	$4,390
Average grade	GS–6.4	GS–6.4	GS–6.4
01 Personal services:			
Permanent positions	2,555,932	2,345,000	2,125,000
Part-time and temporary positions	529,629	315,000	285,000
Regular pay in excess of 52-week base		10,000	8,000
Payment above basic rates	44,720	10,000	7,000
Total personal services	3,130,281	2,680,000	2,425,000
02 Travel	392,706	295,000	270,000
03 Transportation of things	13,939	15,000	10,000
04 Communication services	19,091	15,000	12,000

Obligations by objects—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
ALLOCATION TO GEOLOGICAL SURVEY—continued			
05 Rents and utility services	$44,602	$25,000	$40,000
06 Printing and reproduction	19,382	20,000	18,000
07 Other contractual services	229,113	190,000	175,000
Services performed by other agencies	109,708	45,000	35,000
08 Supplies and materials	356,242	262,612	240,000
09 Equipment	336,651	290,000	265,000
13 Refunds, awards, and indemnities	14		
15 Taxes and assessments	909	10,000	10,000
Obligations incurred	4,652,638	3,847,612	3,500,000
ALLOCATION TO NATIONAL PARK SERVICE			
Summary of personal services			
Total number of permanent positions	43	36	31
Average number of all employees	33	30	29
Average salaries and grades:			
General schedule grades:			
Average salary	$4,447	$4,975	$5,150
Average grade	GS–7.7	GS–7.6	GS–7.7
Personal service obligations:			
Permanent positions	$151,964	$146,634	$143,895
Regular pay in excess of 52-week base		562	575
Total personal service obligations	151,964	147,196	144,470
Direct obligations			
01 Personal services	150,643	147,196	144,470
02 Travel	14,592	22,530	17,000
03 Transportation of things	371	1,000	800
04 Communication services	1,648	1,650	1,650
05 Rents and utility services	2,925	2,600	2,600
06 Printing and reproduction	1,316	500	500
07 Other contractual services	16,402	81,929	40,190
Services performed by other agencies	148,937	223,360	86,065
08 Supplies and materials	4,240	4,600	4,500
09 Equipment	4,750	4,600	2,200
15 Taxes and assessments	80	25	25
Total direct obligations	345,904	489,990	300,000
OBLIGATIONS PAYABLE OUT OF REIMBURSEMENTS FROM OTHER ACCOUNTS			
01 Personal services	1,321		
Obligations incurred	347,225	489,990	300,000
ALLOCATION TO BUREAU OF INDIAN AFFAIRS			
Summary of Personal Services			
Total number of permanent positions	70	68	60
Full-time equivalent of all other positions	1	1	1
Average number of all employees	69	67	61
Average salaries and grades:			
General schedule grades:			
Average salary	$4,146	$4,677	$4,575
Average grade	GS–6.9	GS–6.8	GS–6.4
Personal service obligations:			
Permanent positions	$281,201	$310,884	$274,495
Part-time and temporary positions	1,854	2,000	2,000
Regular pay in excess of 52-week base		1,196	1,055
Payment above basic rates	405		
Total personal service obligations	283,460	314,080	277,550

Obligations by objects—Continued

Object classification	1951 actual	1952 estimate	1953 estimate
ALLOCATION TO BUREAU OF INDIAN AFFAIRS—continued			
Direct Obligations			
01 Personal services	$282,627	$314,080	$277,550
02 Travel	36,328	25,000	10,000
03 Transportation of things	1,248	1,074	1,000
04 Communication services	639	700	720
05 Rents and utility services	5,674	5,000	3,000
06 Printing and reproduction	2,962	2,400	2,000
07 Other contractual services	50,015	16,554	10,000
Services performed by other agencies	28,001		
08 Supplies and materials	13,490	19,500	8,776
09 Equipment	37,202	25,290	13,280
Subtotal	458,186	409,598	326,326
Deduct charges for quarters and subsistence	1,390	1,390	1,326
Total direct obligations	456,796	408,208	325,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	833		
Obligations incurred	457,629	408,208	325,000
SUMMARY			
Summary of personal services			
Total number of permanent positions	17,548	13,126	11,871
Full-time equivalent of all other positions	523	292	246
Average number of all employees	13,948	10,998	10,838
Personal service obligations:			
Permanent positions	$52,240,156	$47,147,414	$46,340,224
Part-time and temporary positions	1,544,901	928,027	771,498
Regular pay in excess of 52-week base		182,228	192,267
Payment above basic rates	1,499,201	1,431,314	1,247,353
Total personal service obligations	55,284,258	49,688,983	48,551,342
Direct obligations			
01 Personal services	54,479,965	48,955,813	47,756,242
02 Travel	2,308,895	2,288,586	2,109,352
03 Transportation of things	4,496,936	3,640,503	2,234,317
04 Communication services	500,008	543,190	479,618
05 Rent and utility services	1,285,673	1,090,095	972,486
06 Printing and reproduction	423,619	521,938	428,107
07 Other contractual services	2,971,928	6,782,761	13,693,924
Services performed by other agencies	763,784	694,627	410,073
08 Supplies and materials	20,652,762	20,361,662	19,022,917
09 Equipment	5,213,027	4,881,438	3,050,819
10 Lands and structures	176,772,656	130,917,797	127,409,318
11 Grants, subsidies, and contributions	156,164	285,000	5,000
13 Refunds, awards, and indemnities	104,353	13,593	11,130
15 Taxes and assessments	45,225	91,972	90,826
Subtotal	270,174,995	221,068,975	217,674,129
Deduct charges for quarters and subsistence	996,424	940,047	982,333
Total direct obligations	269,178,571	220,128,928	216,691,796
Obligations payable out of reimbursements from other accounts			
01 Personal services	804,293	733,170	795,100
02 Travel	4,733	500	500
03 Transportation of things	334	150	100
04 Communication services	400		500
05 Rent and utility services	632	104	1,500
07 Other contractual services	44,605	127,200	113,000
08 Supplies and materials	40,461	20,750	14,600
09 Equipment	19,058	4,450	500
10 Lands and structures	32,369	1,300	1,300
Total obligations payable out of reimbursements from other accounts	946,880	887,624	927,100
Obligations incurred	270,125,451	221,016,552	217,618,896

Analysis of expenditures

	1951 actual	1952 estimate	1953 estimate
Unliquidated obligations, start of year	$102,303,815	$103,454,413	$77,245,936
Obligations incurred during the year	270,125,451	221,016,552	217,618,896
	372,429,266	324,470,965	294,864,832
Deduct:			
Reimbursable obligations	946,880	1,887,624	2,127,100
Unliquidated obligations, end of year	103,454,413	77,245,936	67,572,379
Adjustment in obligations of prior years	13,689		
Total expenditures	268,014,284	245,337,405	225,165,353
Expenditures are distributed as follows:			
Out of current authorizations:			
Out of appropriations to liquidate prior-year contract authorization	268,014,284	1,000,000	
Out of new obligational authority		151,595,976	142,215,000
Out of prior authorization		92,741,429	82,950,353

Mr. KIRWAN. We now come to "Construction and rehabilitation." The appropriation for this year is $208,052,725. The request is for 1953 in the amount of $194,720,000, a reduction of $13,332,725. Pages 230 through 232 of the justifications will be inserted in the record at this point.

(The pages referred to are as follows:)

GENERAL STATEMENT

Funds made available under this appropriation are used for the construction or reconstruction of authorized projects and related activities, including the collection of engineering and design data, the preparation of designs and specifications and the supervision of construction.

Construction.—The 1953 construction program will require the obligation of $213.8 million, including $205.2 million for the continuation of work on 34 projects and 17 units of the Missouri River Basin, $3.6 million for initiation of construction on one MRB unit, and $5.0 million for preconstruction operations on authorized work not now approved for construction. Included in the item for continuing work is $4.0 million for virtual completion of 4 projects and 5 MRB units during the fiscal year. This program is to be financed by $192.4 million of new funds required for fiscal year 1953, and $21.4 million carried forward from prior year appropriations.

There are 107 authorized projects or separately programed divisions of projects. At the end of fiscal year 1952, 62 projects will have been completed, 35 projects will be under construction, and 10 authorized projects or separately programed divisions will not have received construction appropriations.

Bureau facilities had been completed for furnishing irrigation water to over 5,700,000 acres, and a power generating capacity of 3,974,000 kilowatts had been installed at the end of fiscal year 1951. Construction activities now under way or scheduled will provide irrigation facilities for an additional 501,400 acres of land in 1952 and 220,500 acres in 1953. The installed generating capacity will be increased by 352,700 kilowatts in 1952 and 238,750 kilowatts in 1953.

Rehabilitation and betterment.—The rehabilitation program consists principally of the replacement of obsolete or deteriorated structures and equipment in order to preserve the older projects in a satisfactory and efficient operating condition. The rehabilitation program for fiscal year 1953 involves continuing work on 10 projects, 6 of which will be completed. This activity will be financed with an allocation of $2,342,000 from the construction and rehabilitation appropriation and $246,343 of prior year carry-over funds.

There follows a statement showing, by projects, allotments of new funds for fiscal years 1952 and 1953.

State and project	Actual, fiscal year 1952 allotment	Estimated, fiscal year 1953 allotment	Increase or decrease
Construction and rehabilitation	$208,052,725	$194,720,000	−$13,332,725
Eklutna project, Alaska	5,761,400	13,000,000	+7,238,600
Gila project, Arizona	6,870,000	5,582,000	−1,288,000
Colorado River front work and levee system, Arizona-California-Nevada	1,400,000	2,007,000	+607,000
Boulder Canyon project, Arizona-Nevada	2,900,000		−2,900,000
Davis Dam project, Arizona-Nevada	6,572,000	1,754,000	−4,818,000
All-American Canal project, California	3,154,000	420,000	−2,734,000
Cachuma project, California	10,000,000	6,270,000	−3,730,000
Central Valley project, California	33,870,000	40,000,000	+6,130,000
Kern River project, California	75,000	15,000	−60,000
Kings River project, California	12,000		−12,000
Colorado-Big Thompson project, Colorado	19,000,000	18,000,000	−1,000,000
Paonia project, Colorado	186,000		−186,000
San Luis Valley project, Colorado	600,000		−600,000
Boise project, Idaho, Payette division	154,200		−154,200
Palisades project, Idaho-Wyoming	2,000,000	10,000,000	+8,000,000
Buffalo Rapids project, Montana, first division	200,000	222,000	+22,000
Buffalo Rapids project, Montana, second division	77,600	111,000	+33,400
For Peck project, Montana	1,500,000		−1,500,000
Hungry Horse project, Montana	22,000,000	13,245,000	−8,755,000
Sun River project, Montana, Greenfields division	40,400	40,000	−400
Fort Sumner project, New Mexico	64,000		−64,000
Tucumcari project, New Mexico	200,000	204,000	+4,000
Vermejo project, New Mexico	285,000		−285,000
Rio Grande project, New Mexico-Texas	1,288,000	150,000	−1,138,000
W. C. Austin project, Oklahoma	135,000	30,000	−105,000
Deschutes project, Oregon, north unit	300,000		−300,000
Klamath project, Oregon-California	400,000	368,000	−32,000
Provo River project, Utah	2,748,000	2,310,000	−438,000
Columbia Basin project, Washington	27,000,000	20,000,000	−7,000,000
Yakima project, Washington, Roza division	48,600	106,000	+57,400
Eden project, Wyoming	1,900,000	760,000	−1,140,000
Kendrick project, Wyoming	2,250,000	4,100,000	+1,850,000
Riverton project, Wyoming	900,000	437,000	−463,000
Shoshone project, Wyoming	200,000	216,000	+16,000
Rehabilitation and betterment of existing projects	2,852,450	2,342,000	−510,450
Missouri River Basin project	51,109,075	53,031,000	+1,921,925

Mr. KIRWAN. Give us any general explanation of this item you may have and then we will take up each project separately.

DISTRIBUTION OF APPROPRIATION REQUEST, 1953

Mr. LINEWEAVER. Mr. Markwell will take that up, Mr. Chairman. But before we make a statement, we have been requested to submit a division of the appropriation, new funds recommended as between irrigation, power facilities, and multiple-purpose facilities.

Mr. KIRWAN. Are you putting that in now.

Mr. LINEWEAVER. Yes, sir.

(The statement referred to is as follows:)

PROPOSED DISTRIBUTION OF FISCAL YEAR 1953 CONSTRUCTION AND REHABILITATION APPROPRIATION REQUEST

An analysis has been made of the proposed distribution of the fiscal year 1953 appropriation request to estimate the percentages of new funds requested which will be applied to irrigation and municipal water facilities, power facilities, and multipurpose facilities. New funds allowed by the Bureau of the Budget for fiscal year 1953 for construction and rehabilitation amount to $194,720,000. From this amount, $8,500,000 representing the proposed allotments to phases B, C, D, E, and other agencies of the Missouri River Basin project must be deducted leaving $186,220,000 to be expended for construction of facilities. The analysis made indicates that this amount will be distributed as follows:

Irrigation and municipal water (35 percent)	$64,209,000
Power facilities (40 percent)	75,011,000
Multipurpose facilities (25 percent)	46,889,000

A similar analysis made of the appropriation estimate submitted to the Bureau of the Budget for fiscal year 1953 for construction and rehabilitation shows that, of a total of $295,100,000 requested, the distribution would have been as follows:

Irrigation and municipal facilities (30 percent)	$87, 869, 400
Power facilities (33 percent)	99, 094, 000
Multipurpose facilities (37 percent)	108, 181, 500

For ease of comparison, the percentages are repeated below:

	Total	Irrigation	Power	Multipurpose
Request to Budget	100	30	33	37
Allowance by Budget	100	35	40	25

This comparison indicates that the relative percentage allowed for irrigation and municipal facilities has been decreased and the percentage allowed for power facilities increased. There was also a marked decrease in the allowance for multipurpose facilities. An analysis of the major items making up the multipurpose facilities indicates that there may be considerable difference in the final allocation of these sums, depending on whether the allocation is based on immediate use or ultimate development of the project. For example, certain dams and reservoirs listed under the multipurpose facilities heading are at present primarily for flood control, but under ultimate development have large irrigation and municipal components. Other dams and reservoirs under this heading will, when allocated to final use, disclose heavy allocations to power facilities as well as flood control and irrigation benefits.

The attached statement indicates the results on future irrigation development of the policy which increased the percentage of fiscal year 1953 funds allocable to power facilities. The acreage to be brought under irrigation after fiscal year 1955 declines steeply, indicating that the Bureau's program will be even more unbalanced in the future if allotments to irrigation projects and features continue to be deferred.

Analysis of Effect of Continuing Restrictions on the Program of Irrigation Development

The following tabulation shows the rate at which irrigation water, either full or supplemental, can be made available in future years, depending on the approach to new construction starts.

The acreage shown in column 2 of the tabulation assumes that the same criteria utilized in establishing the allowances for fiscal year 1953 will continue to be applied. Under these criteria no new construction starts, either new features of going projects or new projects, are permitted. It will be noted that the effect of the elimination of all new starts is not felt until after fiscal year 1955. After that fiscal year the acreage for which irrigation water will be available will be drastically reduced and will consist of only the acreage being developed on the Columbia Basin, Central Valley, and Missouri River Basin projects.

The acreage shown in column 3 represents the rate of irrigation development which would be feasible if no restrictions were applied as to new feature or project starts and sufficient funds were made available to maintain an orderly and well balanced construction program.

Fiscal year	Acreage (in thousands)	
	Continuing projects	Total
(1)	(2)	(3)
1953	220.5	220.5
1954	560.4	560.4
1955	485.0	507.3
1956	160.7	316.2
1957	120.2	339.8
1958	152.7	423.7
Balance to complete	1,099.9	8,578.3

GENERAL STATEMENT

Mr. LINEWEAVER. Mr. Markwell and Mr. McPhail will answer the questions with respect to the construction, most of the construction items. Some of them I will take. Mr. Markwell will present the general statement on construction for insertion in the record.

(The general statement referred to is as follows:)

GENERAL STATEMENT

Our general statement on construction will be very brief. Funds to be made available under our request for appropriations will be used for continuation of construction work on reclamation projects which are directly essential to the national defense and which will support the economy of the Nation in the production of food, forage, and the development of municipal and industrial water supplies which are essential to the defense activities. More specifically the construction of these multiple-purpose water resource development projects will permit the collection of preconstruction data, the preparation of design and specifications and the payments to contractors for continuation of work on projects under construction, and for the rehabilitation of existing projects which are now in production. Our construction program in fiscal year 1953 is approximately $214 million. Of this amount our request includes $192,400,000 of new funds and the balance of the program will be carried forward by utilizing approximately $21,400,000 carry-over.

REQUEST NEEDED TO MAINTAIN PROGRESS

By June 30, 1952, we will have in force 380 major contracts, with a contract amount of about $320 million which will require earnings in fiscal year 1953 in the amount of about $114 million. During fiscal year 1953, it is estimated that 253 major contracts will be awarded with a total face value of approximately $107 million. Earnings under these contracts will require about $46 million during fiscal year 1953. To carry on the construction work of the Bureau as represented by this program, it is necessary that the funds requested be appropriated to maintain progress on these contracts.

Construction will continue on 34 projects and 17 units in the Missouri River Basin, a total of 51 going projects. Of these 51 projects, new funds are required for construction on 25 regular projects and 13 Missouri River Basin units and on the others work will be continued with funds expected to be available from the current fiscal year.

NEW PROJECT FOR 1953

There are three important projects for which funds were recently made available: the Kirwin unit in Kansas and the Jamestown unit in North Dakota, parts of the Missouri River Basin project, both of which are essential for the protection of farm lands against the devastation of floods and for the development of irrigable land for the production of food; and the Palisades project in Idaho, a multiple-purpose project which will contribute 114,000 kilowatts to the power production of the Northwest area. We will initiate construction work on only one project in 1953, although the Bureau has 10 additional authorized projects (exclusive of the Missouri River Basin units) on which construction work has not been started, the more important being Yellowtail unit in Montana, Vermejo in New Mexico, Solano in California, Weber Basin in Utah, and the Canadian River in Texas. The new project included in fiscal year 1953 is the Glen Elder unit in Kansas on the Solomon River, a tributary of the Kansas River which produced such devastating effects in the Kansas City area in July 1951.

AREA UNDER IRRIGATION

At the end of fiscal year 1951, the Bureau had completed facilities for furnishing irrigation water to approximately 5,712,000 acres of lands, and it is expected that by June 30 of this year, we will have facilities completed for serving about 6,200,000 acres. Power development as of June 30, 1951, was 3,974,000 kilowatts, and by June 30, 1952, we will have an installed capacity of 4,326,000 kilowatts. With the program for 1953, it is expected our facilities will provide water for an additional 220,500 acres and that an additional 238,750 kilowatts of

capacity will be added. This additional power installation is represented by the units to be in operation on the Hungry Horse project and the Colorado-Big Thompson project.

REHABILITATION AND BETTERMENT PROGRAM

The rehabilitation and betterment of existing projects consists principally of the reconstruction, repair, and replacement of obsolete or deteriorated structures and equipment on the older irrigation projects to restore them to a more satisfactory operating condition. The rehabilitation program for fiscal year 1953 consists of construction activities on 10 projects of which 3 will be financed with carry-over funds and 7 will be financed with funds now being requested. The program for rehabilitation and betterment is $2,588,343 and this will require $2,342,000 of new funds.

Mr. MARKWELL. Mr. Chairman, I would like to very briefly summarize the general statement on construction. The Commissioner has already summarized for you the fact that we are requesting $194,720,000 for 25 projects and 13 units of the Missouri Basin including the one new start at Glen Elder Dam on the Solomon River. I think it would be of interest to the committee to know that in the fiscal year 1952 we will substantially complete 10 projects or units of the Missouri Basin, and in 1953, 9 projects or units of the Missouri River Basin project will be substantially completed.

EKLUTNA PROJECT

Mr. KIRWAN. We now come down to the Eklutna project in Alaska. When will this project be completed?

Mr. MARKWELL. In May of 1955.

Mr. KIRWAN. The allotment for this project for 1952 is $5,761,400 and the estimate for 1953 is $13 million. Pages 249 through 252 of your justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations	$33, 751, 695
Total obligations to June 30, 1951	1, 099, 120
Allotment, fiscal year 1952	5, 761, 400
Prior year balance available	880
Total obligations, fiscal year 1952	5, 762, 280
Allotment, fiscal year 1953	13, 000, 000
Total obligations, fiscal year 1953	13, 000, 000
Balance to complete	13, 890, 295

JUSTIFICATION OF ESTIMATE

Authorization.—The Eklutna project was authorized under the act of July 31, 1950 (Public Law 628, 81st Cong.).

Location.—The project is located in south central Alaska approximately 35 miles northeast of the city of Anchorage, Alaska.

Description.—The purpose of the project is the development of hydroelectric power from the stored waters of existing Eklutna Lake. Facilities of the project will include the Eklutna power plant with appurtenant penstock, penstock tunnel, surge tank, tunnel inlet, and tail race; rehabilitation of existing Eklutna Dam; transmission lines to Anchorage and Palmer, Alaska, and associated switchyards, substations, and general facilities. The project is to have an installed capacity of 30,000 kilowatts.

Repayment.—The entire construction cost of the Eklutna project is to be repaid from power revenues. Contract negotiations have been initiated with the An-

chorage Public Utilities, Chugach Electric Association, and Matanuska Electric Association regarding wholesale contracts for the output of the project.

Status.— Construction of the Eklutna project began in fiscal year 1951. As of June 30, 1952, the project will be approximately 20 percent complete. Construction will be under way on the Eklutna Dam, the Eklutna power plant and appurtenant facilities, Anchorage substation, and the Eklutna to Anchorage 115-kilovolt transmission line. Construction will have been completed on the Palmer substation and Eklutna to Palmer 115-kilovolt transmission line and all of the construction facilities necessary to the administration of construction of the project. These facilities will include warehouse, laboratory, housing, and related utilities for Government personnel engaged in construction administration.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 includes continuation of construction on Eklutna power plant and appurtenant facilities and the completion of all other project facilities under construction at the end of fiscal year 1952. Project facilities to be completed include Eklutna Dam, Anchorage substation, and the Eklutna to Anchorage transmission line. Preconstruction work on the Eklutna power plant switchyard will continue through fiscal year 1953.

Justification.—The power shortage which existed in the Eklutna project area at the time of project authorization has become increasingly acute with the increase of military activities in the Anchorage area. This shortage has in part precluded the expansion of the civilian economy at a rate sufficient to service the military effort. The entire Eklutna project service area is now dependent upon an assortment of small and mostly obsolete steam, Diesel and hydro plants that in aggregate are undependable and are insufficient to meet current and future demands. Power rates for energy thus generated are so high as to discourage municipal and domestic development; and the shortage itself positively precludes any additional industrial development in the area. The Eklutna project will in some measure overcome these conditions and will form a stabilizing base about which present power production can be integrated. The prosecution of the Eklutna project construction program will greatly reduce the seriousness of the existing situation and materially help the development and defense of the Territory of Alaska.

The total estimated cost of the Eklutna project has been increased from $20,365,400 to $33,800,000 (anticipated total obligation $33,751,695). The increase in cost since the preliminary estimate was prepared, is primarily attributable to two items, (1) the tremendous impact of the rapidly expanding defense activities on construction costs in the Alaskan area and the recent upsurge of industry accompanying the military program, and (2) a change in plan including lowering of the level of the intake to the power tunnel resulting in an estimated increased output of 42 million kilowatt-hours a year. This increased output is estimated to return in net revenues approximately $400,000 per year without any increase in operation and maintenance costs. During the repayment period of 50 years this will result in an increased net revenue of $20 million. The definite plan report has been revised to reflect this increase. The study of the payout schedule based upon the new estimate indicates the project continues to be economically feasible. Should any delay occur in the construction of the project the estimate may be subject to further change as a result of the current rising trend in construction prices.

Schedule of construction program fiscal years 1952 and 1953, Eklutna project, Alaska

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Eklutna Dam	$78,000	$6,844	$65,000	$6,156	
Eklutna power plant	28,119,000	503,912	3,839,865	11,836,491	$11,938,732
Eklutna power plant switchyard	694,000	3,392	30,000	292,608	368,000
Palmer substation	154,000	4,681	149,319		
Anchorage substation	599,000	412	120,000	478,588	
Eklutna to Palmer 115-kilovolt transmission line	521,000	18,509	502,491		
Eklutna to Anchorage 115-kilovolt transmission line	923,000	11,656	326,000	585,344	
General property	2,712,000	153,349	555,110		2,003,541
Total cost	33,800,000	702,755	5,587,785	13,199,187	14,310,273
Construction facilities		161,659	415,057	−230,000	−346,716
Stores		32,521	−72		−32,449
Project investigations		55,000	−55,000		
Transfers, credits and other expenditures	−48,305	−31,223	−17,082		
Total expenditures	33,751,695	920,712	5,930,688	12,969,187	13,931,108
Unliquidated obligations		178,408	−168,408	30,813	−40,813
Total obligations	33,751,695	1,099,120	5,762,280	13,000,000	13,890,295
Method of financing:					
Allotment, fiscal year 1952			5,761,400		
Prior year balance available			880		
Allotment required				13,000,000	13,890,000

Mr. MARKWELL. I have a statement I would like to submit with respect to the Eklutna project, Mr. Chairman.

(The statement referred to is as follows:)

GENERAL STATEMENT

Certain developments have occurred during the year on the Eklutna project that will be of interest to the committee.

The total estimated cost of the Eklutna project has been increased from a preliminary figure of $20,365,400 to $33,800,000 (anticipated total obligation $33,751,695). The increase in cost since the preliminary estimate was prepared, is primarily attributable to two items:

(1) The tremendous impact of rapidly expanding defense activities on construction costs in the Alaskan area and the recent upsurge of industry accompanying the military program; and

(2) A change in plan including a lowering of the level of the intake to the power tunnel. The over-all result of the change in plan is an increase in annual firm power generation as well as an increase in the total average annual generation.

With the increased usable storage made available with lowered tunnel intake and greater reservoir draw-down, larger regulated firm power water releases can be made from the reservoir. The increase in firm power energy is estimated at about 42 million kilowatt-hours annually. The increased firm and total annual generation is estimated to result in a net increase in annual power revenues of approximately $400,000. During the repayment period of 50 years this will result in an increased net revenue of $20 million. The study of the payout schedule based upon the new estimate indicates that the project continues to be economically feasible with average rates for firm and nonfirm energy of 10.0 and 6.0 mills per kilowatt-hour, respectively. Present applications for power already exceed the total output of the plant.

Enactment of legislation is being sought to amend the authorization act in regard to funds authorized to be appropriated for construction of the Eklutna project.

The Bureau is continuing to construct the Eklutna project as expeditiously as possible to provide critically needed power for the rapidly expanding defense activities in Alaska. Since the project was authorized for construction we have awarded contracts for construction of the 4½ mile long Eklutna tunnel, two

hydraulic turbines, two generators, and for construction of buildings, houses, and other camp facilities, a 115-kilovolt transmission line from Palmer to Eklutna, and an electrical distribution system for the camp at Eklutna.

The aggregate amount of the major contracts awarded through the first week of January 1952, is approximately $19,375,000, payment for which will be spread over several years. Total allotments including those for fiscal year 1952, amount to $6,861,400 and approximately $5,600,000 had been obligated by the end of November 1951. Construction costs in Alaska are considerably higher than in the States and the Bureau has taken every opportunity to get competition from contractors that result in lower bids. Bids for construction of the tunnel were rejected once and the specifications were revised and reissued. This procedure saved the Government approximately $3,970,000.

With respect to the equipment for the power plant, a contract for the turbines was awarded to the Newport News Shipbuilding & Dry Dock Co. The low bid for the generators was submitted by the Pacific Oerlikon Co. of Tacoma, Wash. The generators to be furnished by this company are to be manufactured in Zurich, Switzerland. It was determined that a considerable savings would result if the contract for the generators were made to this company. Since award for foreign manufactured equipment had to be considered in relation to the "Buy American" Act and because of the policy consideration to be resolved, the opinion of the Department was sought before making award. When the Department's findings were received, award for the generators for the Eklutna power plant was made to the Pacific Oerlikon Co. It is estimated that a savings of at least $117,000 or as much as $245,681.07 would result dependent upon escalation. With your permission I am submitting for the record the following material that clearly shows why the Bureau considered this award advantageous: The Bureau's memorandum of December 20, 1951, to the Secretary incorporating the recommendation of the chief engineer, letters from the Pacific Oerlikon Co. of October 30, 1951, National Electrical Manufacturers Association of December 4, 1951, and the Elliott Co. of December 11, 1951; a memorandum from the Under Secretary of the Interior to the Commissioner of the Bureau of Reclamation of January 2, 1952, the findings of the Acting Secretary dated January 2, 1952, and letters to Hon. Michael J. Kirwan dated September 14, 1951, and January 4, 1952.

There is no reliable source of electrical energy in the area and the increase in military activities make it essential that funds requested for fiscal year 1953 be made available so construction of this project can be continued without delay to provide power for furtherence of the defense effort.

LEGISLATION

In view of a completely unanticipated rise in construction costs in Alaska, the Department has found that the limitation placed on authorized appropriations for the Eklutna project is unrealistic. The amount authorized by the act of July 31, 1950, to be appropriated is $20,365,400. Our present estimate, based upon experience with actual bids received for construction of portions of the project, is $33,800,000. The appropriations requested for fiscal year 1953 will not, however, carry us beyond the present limitation.

A draft of bill to amend section 6 of the act of July 31, 1950, in order to remove the present limitation on authorized appropriations has been prepared and is being sent to the Bureau of the Budget for the usual clearance. It will, we hope, be presented to the Committee on Interior and Insular Affairs shortly.

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., December 20, 1951.

Memorandum.
To: Secretary of the Interior.
From: Commissioner, Bureau of Reclamation.
Subject: Policy considerations in first major contract award to foreign bidder for equipment-generators for Eklutna power plant—Eklutna project, Alaska.

In accordance with Buy American Act of March 3, 1933, the head of the Department is authorized to determine the circumstances in which the prohibition of the act on the purchase of products of foreign origin or manufacture may be waived. The Department issued order No. 2289 on January 21, 1947, which was amended on September 26, 1951, giving field purchasing officers or contracting officers authority to purchase products of foreign origin under certain circumstances including cases in which the cost of domestic products is unreasonable as determined by application of a specific formula as prescribed in the order.

On October 25, 1951, bids were opened for furnishing and installing two generators for the Eklutna power plant, Eklutna project, Alaska. Six bids were received. The bids including the price of the generators and spare parts, freight costs to the project, escalation, inspection cost, and 25 percent foreign differential and import duty, where applicable, are tabulated as follows:

General Electric Co., Schenectady, N. Y.	$902,398.31
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.	898,477.16
Westinghouse Electric Corp., Pittsburgh, Pa.	829,253.99
Elliott Co., Ridgway, Pa.	801,897.62
English Electric Co., Ltd., Stafford, England (time of delivery proposed does not meet specification requirement)	692,569.81
Pacific Oerlikon Co., Tacoma, Wash. (generators to be manufactured at Zurich, Switzerland)	639,004.80

In accordance with provisions of Departmental Order No. 2289, Amendment No. 1, and within its delegated contracting authority, the Bureau is authorized to award the contract to Pacific Oerlikon Co. for foreign manufactured equipment as its bid remains low after adding the cost of transportation, import duty and the prescribed differential of 25 percent. However, this is the first time that a foreign manufacturer has submitted a bid on major equipment which meets the requirements of the specifications, and is otherwise eligible for award of a contract. Because of the major precedent this award would establish, it is desirable to call to your attention the policy considerations involved.

A table, analysis of bids and related costs, is attached, which shows a $162,892.82 differential in favor of the Pacific Oerlikon Co., after consideration of the import duty ($49,672.65), the 25 percent foreign differential ($82,778.28) and increased inspection costs. It should be noted that the 25 percent differential is not an actual cost to the Bureau, but is used only to comply with the provisions of Order No. 2289 in evaluating the bid of a foreign manufacturer.

The specifications contain an escalator clause to compensate the manufacturer for his increased costs during the period of fabrication, but require the bidder to stipulate the maximum amount of such increase. Bids are evaluated on the basis of the stated maximum escalation on the assumption that it represents the maximum obligation of the Government under the contract. The Elliott Co. bid contains a 20 percent maximum price escalation, while the Pacific Oerlikon bid is firm. Assuming the full 20 percent escalation would have to be paid to Elliott Co., the actual savings to the Government will amount to as much as $245,681.07 by awarding to Pacific Oerlikon Co. Assuming no price escalation at all, the savings by award to Pacific Oerlikon would be reduced to $117,172.87.

Certain difficulties may result from the award of a contract to a foreign manufacturer. These include difficulties in administrating the contract, obtaining spare parts, securing satisfactory service for correction of operating problems, inspection, exchange of drawings and templates, etc. Nevertheless, the Chief Engineer advises me that the low bid meets the technical requirements of the specifications; that such award would be justified on the basis of savings to the Government; and recommends that award be made to the Pacific Oerlikon Co. The Chief Engineer's report is attached.

We have received an objection to the award of contracts to foreign manufacturers in general from the National Electrical Manufacturers Association, dated December 5. Also a protest by the Elliott Co., dated December 11, has been filed with the Secretary. Copies of both letters are attached.

Protests of a similar nature have recently been received by the Bureau in connection with the consideration of award of contract for the turbines of the Eklutna power plant, in which instance the English Electric Co., of Stafford, England, was low bidder after similar evaluation. The next low bidder was the Newport News Shipbuilding & Drydock Co. However, in this case the English Electric Co., specified a longer delivery time than was acceptable. When award could not be made within the acceptance period, the English Electric Co. refused an extension of time in which to accept bids. The Newport News Shipbuilding & Drydock Co. extended its acceptance period and, therefore, further consideration of award to the foreign manufacturer for the turbines is not before us. It is contemplated award will be made to the Newport News Shipbuilding & Drydock Co.

Protests filed under the turbine case involve claims by domestic manufacturers that the 25 percent differential in conjunction with import duty is not adequate to protect their industry, and that American manufacturers are required to comply with many practices not imposed upon foreign manufacturers which

result in generally higher costs. During discussions with manufacturers' representatives they stated that the tariff or import duty is not adequate protection and, although briefs have been presented before appropriate authorities, protection through that medium is not being granted. It should be noted that the import duty in this case amounts to $49,672.95 and is included when computing the amount for comparison of the bid submitted by the foreign manufacturer. It is also conceivable that this award may bring protests from representatives of labor on the basis that it is diverting work from this country.

In addition to the large monetary savings to the Government some of the general benefits of making award to a foreign manufacturer can be mentioned here: conservation of domestic critical materials and manpower for use in other defense work, promoting development of industries in friendly countries, allowing importation of manufactured goods to offset the large American exports flowing to Europe, and consequent dollar shortage.

With respect to the Eklutna project in general you were previously advised that we have been proceeding diligently with the work and that contracts have been awarded for the construction of the tunnel and other miscellaneous work. The total face value of these contracts, plus other expenditures made to date, is close to the estimated cost of the project, as referred to in the act authorizing its construction ($20,365,400). When the contracts for the turbines and generators are awarded, the face value of contracts let plus other expenditures to date will then exceed the above-mentioned figure. However, expenditures under these contracts will be spread over several years. The contracts provide that future payments are contingent upon appropriations by the Congress.

At the time the contract for the tunnel was awarded in September, a full disclosure was made to the Appropriations Committees of Congress that the project cost will be increased to approximately $33,800,000. Letters to this effect were addressed to Senator Hayden and Representative Kirwan, copies of which were forwarded you by my memorandum of September 14, 1951, subject, Award of Contract for Construction of Eklutna Tunnel, Eklutna Project, Alaska.

Studies reveal that revenue from the project will more than repay the present estimated cost of the project in the 50-year-repayment period. Present applications for power to be used in this important defense are already exceed the total output of the plant, consisting of the two 16,667-kilovolt-ampere generator units now under consideration.

In view of the fact that Congress intended to have construction of this project proceed promptly, as set forth strongly in both the authorizing act and the House and Senate committee reports on the bill, and has provided funds therefore over the past 2 years, it is my recommendation that we actively continue work on this project by awarding the contract for the generators at this time.

Section 6 of the act provides:

"There are authorized to be appropriated the sum of $20,365,400 for the construction of the Eklutna project, and, in addition, such sums as may be necessary for the operation and maintenance of such project."

We are now preparing a draft of legislation to increase the amount authorized to be appropriated.

Even though many technical complications may be anticipated from an award to other than a domestic manufacturer, the large prospective savings compel me to recommend the policy considerations be resolved in favor of making award to the low bidder, the Pacific Oerlikon Co., for furnishing and installing the generators for the Eklutna power plant. The acceptance period of the bids expire December 24, but the company has now granted an extension period of 10 days. Therefore, it will be appreciated if you will indicate your approval in the space provided below before December 28.

MICHAEL W. STRAUS, *Commissioner.*

Approved: January 2, 1952, by separate memorandum by Acting Secretary Searles.

ANALYSIS OF BIDS AND RELATED COSTS

The following table shows a series of price comparisons of the three low bids:

	Pacific Oerlikon Co.	English Electric Co.[1]	Elliott Co.	Differential between Elliott and Oerlikon
Location of manufacturer	Switzerland	England	United States of America	
Shipping point	Tacoma, Wash.	Seattle, Wash.	Ridgway, Pa.	
F. o. b. shipping point, exclusive of duty and foreign differential	$464,444.00	$504,450.00	$622,570.00	$158,126.00
Freight cost	6,489.60	9,842.11	23,498.42	17,008.82
Spare parts	9,850.00	14,890.00	19,971.00	10,121.00
15 percent import duty	49,672.95	50,950.00		−49,672.95
Estimated inspection cost	25,760.00	28,600.00	7,350.00	−18,410.00
Estimated cost to Bureau (bid amount)	556,216.55	608,732.11	673,389.42	117,172.87
Maximum price increase	0	0	128,508.20	128,508.20
Estimated cost (including escalation)	556,216.55	608,732.11	801,897.62	245,681.07
25 percent foreign differential [2]	82,788.25	83,837.50	0	−82,788.25
Amount for comparison	639,004.80	[1] 692,569.61	801,897.62	162,892.82

[1] Time of delivery proposed does not meet specification requirement.
[2] Applicable to price plus spare parts f. o. b. foreign port.

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Denver, Colo., November 20, 1951.

To: Commissioner, attention: 210, 810, 150.
From: Chief Engineer.
Subject: Award of contract—Specifications No. DC–3536—Generators for Eklutna power plant—Eklutna project, Alaska.

Bids for the Eklutna generators were opened here at 2 p. m. on October 25, 1951. Six bids were received, as reported in my Teletype DN–WA 999, October 26, 1951. The following tabulation gives the evaluations and cost considerations for each of the three low bids and shows the total amounts for comparison:

Pacific Oerlikon Co., Tacoma, Wash. (shipping point, Tacoma, Wash.—generators to be manufactured at Zurich, Switzerland):	
Bid price f. o. b. shipping point (not including import duty)	$464,444.00
Plus spare parts, f. o. b. Tacoma	9,850.00
Plus 25 percent foreign bid differential (applied to price f. o. b. Zurich, Switzerland, $321,303; and spare parts, $9,850)	82,788.25
Plus import duty (15 percent of total cost in Switzerland, $321,303; and spare parts, $9,850)	49,672.95
Plus Government freight cost (Tacoma to project)	6,489.60
Plus total estimated inspection cost	25,760.00
Total amount for comparison	639,004.80
English Electric Co., Ltd., Stafford, England (shipping point Seattle, Wash.—generators to be manufactured at Stafford, England):	
Bid price f. o. b. shipping point (including $13,870 freight cost, $50,950 customs duty, and $170,120 erection costs)	$555,400.00
Plus spare parts, f. o. b. Seattle	14,890.00
Plus 25 percent foreign bid differential (applied to price f. o. b. British port, $320,460; and spare parts, $14,890)	83,837.50
Plus Government freight cost (Seattle to project)	9,842.11
Plus total estimated inspection cost	28,600.00
Total amount for comparison	692,569.61

Elliott Co., Ridgway, Pa., (shipping point Ridgway, Pa.):	
Bid price f. o. b. shipping point	622, 570. 00
Plus spare parts, f. o. b. Ridgway	19, 971. 00
Plus Government freight cost	23, 498. 42
Plus 20 percent maximum price increase (including spare parts)	128, 508. 20
Plus total estimated inspection cost	7, 350. 00
Total amount for comparison	801, 897. 62
The engineer's estimate is	768, 000. 00

The low bid meets the technical requirements of the specifications. Three copies of the abstract of bids for the generators are enclosed. Also enclosed are copies of correspondence received from the two low bidders giving detailed breakdowns of their bid prices. The low bid price did not include import duty, but this has been computed by taking 15 percent of the total cost of the generators in Switzerland plus the total f. o. b. Tacoma price of spare parts. (No detailed breakdown was given as to elements included in price of the spare parts.)

No wharfage, handling, or heavy lift costs have been included, as it is assumed such costs would be comparable for all bidders and would not affect the relative standings of the bidders. The low bidder failed to give the weight of spare parts, but this information will be obtained. Twelve thousand pounds was used for this weight in computing the Government freight cost. The inspection costs were computed on the assumption that no Army or Navy inspection services will be available at the foreign manufacturers' plants, and per diem at the rate of $8 was included for the low and second low bids. You are requested to ascertain whether Army or Navy inspectors will be available and correct the evaluation figure if our assumption proves to be incorrect.

The low bid stated complete shipment of the first generator in 750 days and the second generator in 840 days, with complete installation of the generators in 850 days and 940 days, respectively, as desired by the specifications. All other bidders gave the desired completion times except the second low bidder, English Electric Co., whose bid indicated shipment in 840 days and 930 days with completion in 1,020 and 1,110 days.

The low bidder's completion times will permit early completion of the Eklutna project as now scheduled (see my speedletter of October 17, 1951, on the subject "Opening of bids—Invitation DS–3506—hydraulic turbines for Eklutna power plant"). Therefore, I recommend award of the subject contract to the low bidder, Pacific Oerlikon Co., Tacoma, Wash., at the bid price of $474,294 (incuding spare parts) f. o. b. Tacoma. The low bidder's parent company, the Oerlikon Engineering Co., which will build the generators in Switzerland, is a long-established electrical equipment manufacturer and is believed qualified to satisfactorily build and install the Eklutna generators.

Although award to the Pacific Oerlikon Co. may involve difficulties in administration of the contract, obtaining spare parts, securing satisfactory service for correction of operating problems, etc., such award would appear to be justified on the basis of savings to the Government, which (disregarding the foreign bid differential) will amount to as much as $245,000 over the Elliott Co.'s bid assuming the full 20 percent escalation would be paid to Elliott. Even if no escalation was paid to Elliott, the apparent savings to the Government by awarding to Pacific Oerlikon would be approximately $117,000.

The Legal Division finds the low bid legally sufficient except we are verifying guaranteed shipping weights for the generators, shipping weights are being obtained for the spare parts, and bid bond is being returned for correction.

The following comments are also made to assist you in consideration of this bid:

1. Bidder specifies price for lengthening shafts, but specifies that shafts cannot be shortened. Reason for this stipulation is that design of Pacific Oerlikon generators will not permit, physically, the shortening of the shafts. However it has now been decided that the shafts will not be shortened. Accordingly, the bidder's statement has no practical significance. The chief, field office of chief counsel, advises that since the bidder bid without limitation upon our primary requirement, and since the reservation of right to lengthen the shaft was a contingent one, reserved for the benefit of the Government, it may be waived in the Government's interest, it being known now that the contingency will not arise.

2. We request that you verify with the Treasury Department in Washington the duty applicable on generators and on spare parts. We have no source of information, locally, as to these matters.

The specifications reserve $117,000. The low bidder gave the following budgetary information: Fiscal year 1952, none; fiscal year 1953, $200,000; and fiscal

year 1954, $264,444. The control schedule dated August 21, 1951, Form PF–2A for the Eklutna project, shows a total of $900,000 programed for the generators, as follows: Fiscal year 1952, $117,000; fiscal year 1953, $235,000; and fiscal year 1954, $548,000. By teletypes dated July 30, 1951, and September 10, 1951, the construction engineer prevalidated $117,000 from fiscal year 1951 funds and stated the following would be included in requests for future appropriations: Fiscal year 1953, $235,000; fiscal year 1954, $315,000; and fiscal year 1955, $118,000.

Teletype JU–DN 79 dated November 13, 1951, from the district manager states, "Concur with the Chief Engineer's recommendations Specifications DC–3506 to the Newport News Shipbuilding & Drydock Co. and Specifications DC–3536 to the Pacific Oerlikon Co. Costs involved in above features included in repayment schedule requirements."

L. N. McClellan.

Pacific Oerlikon Co.,
Tacoma, Wash., October 30, 1951.

Bureau of Reclamation Specifications No. 3536, generators for Eklutna power plant.

Mr. L. N. McClellan,
Chief Engineer, Bureau of Reclamation,
Denver Federal Center, Denver, Colo.

Gentlemen: In order that you may have information to correctly calculate the import duty and apply the penalty for a foreign bid, the following breakdown of our bid price is herewith submitted:

Two complete generators f. o. b. Zurich, Switzerland	$292,094
Plus 10 percent to firm up price	29,209
Subtotal	321,303
Cost of erection and test engineer	28,836
Freight and insurance	32,560
Erection and test	60,000
Bonds	960
Protection for Pacific Oerlikon Co	20,785
Total	464,444

Yours truly,

B. C. West, *Sales Manager.*

National Electrical Manufacturers Association,
New York 17, N. Y., December 4, 1951.

Subject: Generators for Eklutna power plant, Eklutna project, Alaska, Bureau of Reclamation Invitation No. DC–3536.

Hon. Kenneth W. Markwell,
Assistant Commissioner, Bureau of Reclamation,
United States Department of the Interior, Washington 25, D. C.

Dear Sir: A representative of the large generating and converting apparatus section of the National Electrical Manufacturers Association attended a meeting in your office on November 7, 1951, as an observer. This meeting was the result of your extending to the hydraulic turbine section of NEMA the courtesy of a hearing in connection with invitation to bid No. DS–3506 on the hydraulic turbines for the subject project. Our section would like to thank you for the courtesy of permitting our representative to also attend this meeting. Our representative presented a brief report on this meeting at the annual meeting of the large generating and converting apparatus section of NEMA, November 13, 1951. With your permission, our section, whose members account for practically all of the total United States production of medium- and large-size hydraulic turbine-driven generators, would also like to express its views on the matter of foreign bids on the subject project.

We feel that the issuing of invitations to bid and the possible awarding of contracts to foreign bidders on such projects involves a serious risk to our national security. The invitations to bid include a considerable amount of vital information on such power projects. An actual award and performance of a contract would involve the disclosure of even more vital information. This information

would then be on file in a foreign country which, even though friendly to the United States at this time, could conceivably be overrun and the information then fall into unfriendly hands. In World War II our own strategic bombing force found such information on foreign power projects of invaluable assistance. Each member company of our section recalls having furnished such information to our own defense forces.

The facilities of the manufacturers of large generating and converting equipment represent an extremely important segment of American industry. Such facilities are important in war or peace, because without such facilities the very vital electric-power-producing capacity of this country could not be expanded or even adequately maintained. As a vital element in the industrial framework of our Nation and its defense, this industry must be kept in a healthy condition. Sufficient facilities and labor are available within this industry to provide for the manufacture of all the electric-power-producing equipment required both for national defense and for normal peacetime requirements, providing sufficient raw materials are made available. Awarding power-equipment contracts to foreign manufacturers will not necessarily conserve materials for our own defense program, because such materials would usually be obtained by the foreign manufacturer from the American market or the world market where we obtain our materials. Such awards to foreign manufacturers would tend to weaken this industry in the United States by forcing the American manufacturers to divert the labor and convert the facilities to the production of other products. Once such diversion and conversion had taken place, considerable valuable time would be lost in trying to reestablish this industry in the event of an all-out conflict.

In addition to the effect on our national security, we, as an industry, feel that the present basis for accepting bids from foreign manufacturers tends to defeat the intent of the Buy American Act. As American manufacturers, we, rightfully, must comply with all the provisions of the Walsh-Healey Act, while foreign manufacturers are specifically exempted from such compliance. This constitutes an "exception" to the bid and/or contract which gives the foreign manufacturer an important competitive advantage.

The protection afforded the American manufacturer by present administrative interpretations of the Buy American Act is inadequate to meet today's conditions. The 25 percent differential used as a criterion of "unreasonable cost" may have been realistic at the time the act was passed by Congress, but it takes no account of the far greater increase in costs experienced by American manufacturers in our industry since that date as compared with foreign manufacturers in the same field.

We also feel the import duty on the class of equipment manufactured by our segment of American industry is not adequate protection, considering the very low wage rates experienced by comparable foreign manufacturers. Briefs have been filed on this subject at various hearings that have been held.

Our industry has helped develop various American standards for this class of equipment which are of benefit to both the user and the manufacturer. You have recognized these standards by stating in your invitation to bid on this project under (*a*) "experience shall be in the design, construction, and testing, in accordance with the standards of the American Institute of Electrical Engineers and the American Standards Association, of generators of the same general type, rating, and performance standards as those specified herein," and under (*b*) "unless otherwise specified herein, all materials used in the manufacture of the equipment shall conform to applicable Federal specifications and; if there are no applicable Federal specifications, shall conform to the latest applicable specifications of the American Society of Testing Materials."

We feel that, on the basis of the above-quoted provisions of your invitation to bid, you are wisely committed to recognize only the American standards for equipment of this class which is installed in the United States or its Territories. We do not see how a foreign manufacturer bidding on generators for hydraulic turbine drive can completely qualify under these various standards, unless he has been manufacturing for the American market for some time, and has therefore gained familiarity with these standards.

It is unfortunate that the large generating and converting appratus section of NEMA could not meet to prepare this letter sooner; however, we would appreciate your giving careful attention to our comments, in your consideration of this and similar future projects.

Very truly yours,

V. J. EGAN,
Chairman, Large Generating and Converting Apparatus Section.

ELLIOTT CO., INC.,
Ridgway, Pa., December 11, 1950.

Subject: Generators for Eklutna power plant Eklutna project, Alaska, Bureau of Reclamation Invitation DC–3536.

Hon. OSCAR L. CHAPMAN,
Secretary of Interior, United States Department of Interior,
Washington 25, D. C.

DEAR SIR: As a responsible American manufacturer of generators for hydraulic turbine drive, we bid on the subject generators in complete compliance with the subject invitation to bid. We have noted that bids were also received from two foreign manufacturers in addition to bids from three other American manufacturers.

Our bid appears to be the lowest bid by an American manufacturer; however, it further appears that both of the bids by foreign manufacturers are still somewhat lower.

We do not feel that the bid of a foreign manufacturer can be in complete compliance with the invitation to bid, nor can a contract be executed with such a manufacturer and incorporate all of the provisions of subject invitation to bid and United States Standard Contract Form No. 23. For example: The invitation to bid and/or the standard contract form require the successful bidder to—

1. Comply with Walsh-Healy Act (par. 18, p. 7, of invitation).
2. Have experience in accordance with various American standards (par. 16 (a), p. 4, of invitation).
3. Furnish materials in accordance with various Federal and American standards (par. 37, p. 23, of invitation).
4. Comply with 8-hour law, overtime compensation, convict labor (art. 11 of form No. 23).
5. Comply with Domestic Preference (form No. 7–1532 of invitation and art. 18 of Form No. 23), and the Buy American Act.

We do not feel that foreign equipment is comparable in life and performance to American equipment, even though it apparently meets the specifications. Further, if generators were to be purchased from a foreign manufacturer, would the Bureau of Reclamation inspectors be as free to inspect the parts during manufacture as they are in this country? Would there be difficulty in having the generator and turbine shafts alined and inspected? Would repair parts or accessory items, usually standard in this country, be difficult to obtain, particularly in time of international conflict? If all of the above is duly evaluated, will the foreign bid be the ultimate low bid?

It is our understanding that in evaluating generator bids various interpretations are applied. Under the Buy American Act, it has been interpreted that a differential in excess of 25 percent between foreign and American bids would represent "unreasonable cost." We do not feel that this differential adequately reflects present-day cost increases experienced by American manufacturers; and, if given an opportunity, we can demonstrate this differential should be considerably greater. The bid invitation on the generators specified that the contract price should be increased or decreased to conform to contractors established price at time of required shipment with a blank space in which the contractor was to specify a percentage limit on any increases. Because of inflationary trends in this country, we find it necessary to protect ourselves against increases in costs by bidding with a 20 percent limit rather than a 0 percent limit on increases. We understand this 20 percent possible increase in price has been added to our bid for the purpose of evaluation. We further understand that on hydraulic turbine bid invitations another method is provided for escalation; namely, on the basis of increase or decrease in labor and material indexes with unlimited ceiling on increases. It is our further understanding that in evaluating hydraulic turbine bids nothing is added to the bid for possible contract-price increases.

If consideration is being given to awarding this contract to a foreign bidder, we, as low American bidder, wish to protest and respectfully request a hearing.

Respectfully yours,

ELLIOTT CO.,
F. W. DOHRING, *Vice President, Sales.*

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., January 2, 1952.

Memorandum.
To: Commissioner, Bureau of Reclamation.
From: Under Secretary of the Interior.
Subject: Eklutna project, Alaska.

In a separate memorandum of this date I have sent you my findings on your decision to award the contract for furnishing and installing the generator for the Eklutna power plant to the low bidder, the Pacific Oerlikon Co. of Tacoma, Wash. From the information furnished at the hearing I did not find any reason to reverse your decision of award.

Approval is also given to your determination that work on the project be actively continued. Necessary contracts should be awarded and other authorized obligations incurred that are essential to moving construction forward on a coordinated schedule to produce power for defense and related purposes at the earliest possible moment which appears to have been the intent of the Congress at the time the project was authorized.

The requests for appropriations for and actual expenditures on the project, however, must in no event exceed $20,365,400, the sum set forth in section 6 of Public Law 628, Eighty-first Congress, as the amount authorized to be appropriated for the construction of the Eklutna project until appropriate action is taken by the Congress.

Enactment of legislation to increase the amount authorized to be appropriated for the construction of the project to conform to current cost estimates should be sought promptly.

Copy of findings is attached.

R. D. SEARLES, *Under Secretary.*

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., January 2, 1952.

Subject: Hearing on award of contract for furnishing generators for Eklutna power plant, Eklutna project, Alaska.

At the request of the Elliott Co. of Ridgway, Pa., a hearing was held on December 28, 1951, at 10:30 a. m. in the Secretary's conference room, Department of the Interior, to hear that company's protest against the awarding of a contract for the above equipment to the Pacific Oerlikon Co., Tacoma, Wash., and Zurich, Switzerland. The National Electrical Manufacturers Association was also represented at the hearing, and its views respecting this matter were made known.

The Elliott Co. contends that the Commissioner of the Bureau of Reclamation is not warranted in making for this case a basis sufficient to permit the acquisition of generators manufactured outside the United States, under the provisions of section 2 of the so-called Buy American Act (41 U. S. C., 1946 ed., sec. 10a).

Under that section, there are two alternative tests for application in this case. One of them is whether the cost of domestically manufactured generators would be "unreasonable." The other is whether the acquisition of domestically manufactured generators would be "inconsistent with the public interest." If the application of either of these tests to the facts of the present case results in an affirmative answer, the Commissioner is authorized by the provisions of the Buy American Act to purchase generators manufactured outside the United States, instead of being limited to the purchase of generators manufactured in the United States.

Turning first to the question of whether the cost of domestically manufactured generators would be unreasonable, the information submitted shows that of the American companies submitting bids for the furnishing of generators for the Eklutna power plant, the Elliott Co. submitted the lowest bid. Its base bid was in the amount of $622,570. When the freight from Ridgway, Pa., in the amount of $23,498.42, the cost of spare parts amounting to $19,971, and the estimated inspection cost in the amount of $7,350 are added to the amount of the base bid, it appears that the minimum cost to the Bureau of Reclamation of purchasing the generators from the Elliott Co. would aggregate $673,389.42. In this connection, however, the bid of the Elliott Co. contains an escalation clause which might result in increasing the cost to the Bureau of Reclamation by a maximum amount of $128,508.20, which would bring the aggregate cost of the generators, if pur-

chased from the Elliott Co. up to a total figure of $801,897.62. Specifications require that any escalation clause shall be included in the total of the bids for comparison purposes.

The Pacific Oerlikon Co., on the other hand, submitted a base bid, f. o. b. Switzerland of $321,303, and a total bid of $464,444, including erection, freight, etc. When the freight cost from Tacoma, Wash., in the amount of $6,489.60, the cost of spare parts in the amount of $9,850, a 15 percent import duty in the amount of $49,672.95, and the estimated inspection cost in the amount of $25,760 are added to the amount of the base bid, it appears that the aggregate cost to the Bureau of Reclamation in purchasing the generators from the Pacific Oerlikon Co. would be $556,216.55. This comparison is after charging the Pacific Oerlikon Co. with the 15 percent import duty of $49,672.95, which, of course, reverts to the Government.

The difference in bid prices between the two companies in considerably in excess of the 25 percent margin of the f. o. b. price, or $82,788.25.

The Secretary's departmental instructions as to the application of the Buy American Act have been outstanding for several years and no previous protest has been made or brought to our attention that the 25 percent differential was inadequate. This differential, with the 15 percent import duty, means that the foreign bidder must be at least 40 percent below the bid of the American company. Approximately the same regulation has been in effect for some time in the Code of Federal Regulations as set out in the 1949 edition.

Consequently, when the amount bid by the Pacific Oerlikon Co. is compared with the amount bid by the Elliott Co., it is noted that the purchase of the generators from the Pacific Oerlikon Co. would result in a difference to the Bureau of Reclamation of at least $117,172.87, and that such difference might amount to as much as $245,681.07 if the escalation clause in the Elliott Co.'s bid were to become operative.

Inasmuch as the cost to the Bureau of Reclamation of purchasing domestically manufactured generators in this case would be at least $117,172.87 more than the cost of purchasing the generators from the Pacific Oerlikon Co., it does not appear justifiable to overrule the Commissioner's conclusion that the cost of the domestically manufactured generators would be unreasonable, within the meaning of that term as used in section 2 of the Buy American Act.

In supporting his decision to award to the Pacific Oerlikon Co., the Commissioner points out that, in addition to the difference in costs that would result from awarding to the lowest responsible bidder, consideration should be given to other benefits, that would flow from making this award to the Pacific Oerlikon Co. The principal of these benefits is the conservation of domestic critical materials, as well as manpower, for use in other defense work. This point is well taken, inasmuch as the Defense Production Administration has pointed out that the shortage of domestic metals will last for a considerable length of time. Further, the Government at the present time is endeavoring to purchase in the foreign market many of the materials that go into this type of equipment. Also, it does not tie up manpower which can be used in other critical defense work. If priority materials were used in manufacturing the equipment in this country, it would mean taking those materials from other defense-supporting or nondefense manufacturing which, in turn, could create unemployment in other industries. The second point made by the Commissioner is the promotion of industries in friendly countries and allowing imports of manufactured goods to offset the large American exports flowing to Europe and consequent dollar shortage.

The information supplied at the hearing does not appear to justify reversing the Commissioner's decision to award the contract to the Pacific Oerlikon Co. His conclusion that manufacture of these generators outside the United States would not have any appreciable adverse effect on this country's economy or on the employment of labor; but, on the contrary, that it would conserve desperately needed materials, as well as needed manpower, for other defense work, and, hence, would be in the public interest, appears well substantiated.

On the basis of the information supplied at the hearing on December 29, we do not feel justified in reversing the Commissioner's decision to award the Eklutna generator contract to the Oerlikon Co.

R. D. Searles,
Acting Secretary of the Interior.

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., September 14, 1951.

HON. MICHAEL J. KIRWAN,
House of Representatives,
Washington, D. C.

MY DEAR MR. KIRWAN: This letter is to inform you of recent developments in carrying out the construction of the Eklutna project near Anchorage, Alaska, by the Bureau of Reclamation pursuant to the authorization of this work by Congress.

During the hearings on the authorization of the project before the House Committee on Public Lands and the Senate Committee on Interior and Insular Affairs in 1949 and 1950, the Congress was advised that the current estimated cost of the project was $20,365,400. This estimate was based on 1948 prices, taking into consideration Alaska differentials, as reflected in a favorable report on the project submitted to the Congress on September 14, 1949, after clearance by the Bureau of the Budget.

The principal features of the project as authorized by the act of July 31, 1950, include a 30,000-kilowatt power plant, penstock tunnel, surge tank, and related facilities; the rehabilitation of the existing Eklutna Dam; transmission lines and necessary switching facilities to transmit power from the Eklutna power plant to industrial and military loads in the vicinities of Anchorage and Palmer, Alaska; and the purchase of existing power production and transmission facilities of the city of Anchorage.

Following authorization of the project, the Bureau of Reclamation has awarded contracts for housing and other facilities necessary for construction of the major project facilities. Bids for the construction of the Eklutna tunnel were opened on June 25, 1951, at which time only two bids had been submitted. These were in the amounts of $21,321,695 and $22,798,432, respectively, as compared to the engineer's estimate of $11,205,105. Upon examination of the bids it was found that the high prices quoted as compared with the estimate was due to rising construction costs generally, and particularly to unfavorable contracting conditions prevailing in the Alaskan area.

We were aware that construction costs had been rising in the United States and in Alaska since the preliminary estimate was prepared, but in view of the tremendous impact of the rapidly expanding defense activities on construction costs in the Alaskan area and the recent upsurge of industry accompanying the military program, construction prices went far beyond our expectation. Therefore, in order to reexamine the effect of the higher construction prices on the total estimated cost and feasibility of the project and to effect economies wherever possible the bids were rejected. After intensive study some modifications were made in the plans and specifications which we believed would lower bids and the tunnel work was readvertised.

Bids were again opened on September 12, 1951, with the following results:

Bidder	*Spec. No. DC-3523*
Palmer Constructors: Peter Kiewit Sons, Coker Construction Co., and Morrison Knudsen Co., Inc., Omaha, Nebr	$17, 348, 865. 00
Grafe-Callahan, Rhodes-Shofner and D. G. Gordon, Los Angeles	17, 776, 596. 50
Utah Construction Co., San Francisco, Calif	19, 249, 774. 00
William A. Smith Construction Co., and Brown and Root, Inc., Houston, Tex	22, 586, 725. 00
Engineer's estimate	18, 175, 568. 00

The low bid in the amount of $17,348,865 is approximately $4,000,000 less than the low bid previously received, and is $826,703 below the engineer's estimate which was revised on the basis of latest construction conditions in Alaska. After due consideration of the above quotations, it was my conclusion that further readvertisement would not result in lower cost to the Government and still permit the construction of an economical project. Furthermore, in my opinion any additional delay will probably result in increased costs due to the currently rising trend in construction prices, and would delay the production of badly needed power for defense and other Alaskan activities.

On the basis of our current study of the prices prevailing in the Alaskan area, of the conditions under which construction will be performed, and the prospective economical situation for the immediate future, it now appears that the total estimated cost of the Eklutna project will be increased to approximately $33,-800,000 which is about $13,400,000 higher than the original estimate. However,

careful analysis of the increased costs in relation to the earning power of the project has led to the conclusion that the project will still be financially feasible.

The power shortage which has existed in the Eklutna project area at the time of project authorization has become increasingly acute with the increase of military activities. This shortage has in part precluded the expansion of the civilian economy at a rate sufficient to service the military requirements with the result that the defense effort is being affected. The entire Eklutna project service area is now dependent upon an assortment of small obsolete steam, Diesel and hydro plants that together are insufficient to most demands, and in times of mechanical failure, there is complete lack of power to satisfy power demands. Power rates for energy thus generated are so high as to discourage development, and the shortage positively precludes potential industrial development in the area. The Eklutna project will in a large measure overcome these conditions and will provide a stable facility with which present power production can be integrated.

Therefore, in view of the urgent need for power capacity in the area to serve the military requirements, the growing needs of an increasing population along with the expanding defense activities, and the demands of rising industrial loads created by progressive development of the territory, and in view of the fact that the project is still feasible even in the face of higher construction costs, it has been determined upon recommendations of the district manager and the Chief Engineer and after consultation with the Secretary, that it is in the Government's interest to proceed immediately with construction of the project as set forth in the report to the Congress. This is being done to carry out the expressed intent of Congress to proceed with the Alaska program promptly, which is set forth in authorizing the project and providing appropriations therefor over the past 2 years. Accordingly, we have awarded, as the major step in this undertaking, the contract for construction of the Eklutna tunnel to the low bidder, the Palmer Constructors, on the basis of its low bid in the amount of $17,348,865.

I am sending a similar letter to Senator Hayden, chairman of the Senate Appropriations Committee so that the Appropriations Committee may be fully informed in accordance with our policy of advice and consultation with Congress during periods when we are unable to report at annual hearings which are not now scheduled. I shall continue to advise you of any significant circumstances affecting the development of the project.

Sincerely yours,

MICHAEL W. STRAUS, *Commissioner.*

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., January 4, 1952.

Hon. MICHAEL J. KIRWAN,
House of Representatives, Washington 25, D. C.

MY DEAR MR. KIRWAN: On September 14, 1951, we advised you that a contract had been awarded for the construction of the Eklutna tunnel, the first major contract award associated with the development of the Eklutna project near Anchorage, Alaska.

Award is now being made on two major equipment contracts, one for the turbines and one for the generators for the Eklutna power plant. The generators will be manufactured in Switzerland, a circumstance which introduced unusual policy considerations. Because of this I submitted the case to the Secretary of the Interior for consideration and because of the very substantial prospective savings to the Government, I recommend that award be made to the low bidder.

A copy of my memorandum to the Secretary, which is enclosed, gives a full presentation and discussion of the circumstances providing the background for the action taken. Also enclosed is a copy of a memorandum from Acting Secretary Searles of January 2 approving the recommendation.

The developments reported herein are brought to your attention in accordance with our policy of advice and consultation with the appropriate committee chairmen when the Congress is not in session. Senator Hayden, chairman of our Senate Appropriations Subcommittee, Senator O'Mahoney, chairman of the Senate Interior and Insular Affairs Committee, and Congressman Murdock, chairman of the House Interior and Insular Affairs Committee, are being furnished a similar report. We shall continue to keep you advised on significant developments on this important Alaskan project.

Sincerely yours,

MICHAEL W. STRAUS, *Commissioner.*

INCREASE IN COST OF PROJECT

Mr. MARKWELL. In summarizing that statement I would like to remind the committee that the estimated cost of the project has increased from preliminary figure of $20,365,000 estimated in 1949 to $33,800,000, primarily because of the tremendous impact of the rapidly expanding defense activities on construction costs in Alaska and because of a change in design which produces an additional 42 million kilowatt-hours annually which in turn produces an additional $400,000 in net revenue annually, or $20 million over the 50-year period.

MANUFACTURE OF GENERATORS IN SWITZERLAND

The project remains financially sound. A number of major contracts have been awarded, among them the generator contracts to the Pacific Oerlikon Co. of Tacoma, Wash., which will have the generators manufactured in Switzerland. Since protests were filed against this award, I included with my general statement, previously inserted in the record, pertinent data on this award. It was estimated it will save the United States a minimum of $117,000 and a maximum of $245,000.

Mr. KIRWAN. Do you mean by awarding the contract to the Swiss firm we will save $245,000?

Mr. MARKWELL. An American firm will have the generators manufactured in Switzerland. The assembly and erection will be done by the Pacific Oerlikon Co. of Tacoma, Wash. It is estimated there will be a large saving in cost.

Mr. KIRWAN. It will save this country $245,000. Is that the maximum?

Mr. MARKWELL. Yes, sir; that is the maximum.

Mr. KIRWAN. The minimum you say is $125,000?

Mr. MARKWELL. $117,000. I might also add that the Treasury would be enriched by some $50,000 in customs duty although we cannot, of course, consider that in making the award.

REASON FOR INCREASED COST

Mr. KIRWAN. What was the reason for the large increase over the original estimated cost?

Mr. MARKWELL. There were two principal reasons. One of them is this; there has been a very great increase in construction activity in Alaska. That has had, of course, a great impact upon the prices we have to pay. Costs have increased even more rapidly in Alaska than in the United States. Labor has gone up; everything has gone up in this area. The other principal reason is that we have made a change in design which increases the output of the plant by 42 million kilowatt-hours a year with a net additional revenue of $400,000 a year. That would amount to $20 million over the 50-year repayment period. The revised design not only provides the additional power in a power-short area but also this additional revenue.

Mr. KIRWAN. Would you say the largest increase results from increased labor costs?

Mr. MARKWELL. I have not broken it down. I think that increased labor costs are a large factor, sir.

Mr. KIRWAN. When will the project be completed?

Mr. MARKWELL. The power will go on the line, it is estimated, in May 1955.

TRANSMISSION OF POWER

Mr. KIRWAN. What is the status of the contract negotiations with private utilities for taking the power?

Mr. MCPHAIL. Mr. Chairman, there are no private utilities in the area but we already have requests for power, equaling the full capacity of the plant, from the city of Anchorage and two REA projects in the area, one the Chugach Electric Cooperative near Anchorage and the other the Matanuska Valley Cooperative in the Matanuska Valley.

Mr. KIRWAN. Are there no private utilities at all?

Mr. MCPHAIL. No, sir.

Mr. KIRWAN. The Government will have to do the transmitting of all the power?

Mr. MCPHAIL. There is only a relatively small amount of transmission line required.

Mr. KIRWAN. What it amounts to is that the Government will have to do it?

Mr. MCPHAIL. Yes, sir.

Mr. KIRWAN. You say you already have requests to purchase the power that will be generated?

Mr. MCPHAIL. Yes, sir.

Mr. KIRWAN. Mr. Norrell, do you have any questions on the Eklutna project in Alaska.

NEED FOR EXTRA POWER

Mr. NORRELL. What about the need for this extra power among the inhabitants or civilians of Alaska? Do they need it?

Mr. MCPHAIL. Quite desperately, Mr. Norrell. They have had extreme difficulty in carrying the loads in the area. You may not be familiar with the fact that half a wrecked ship containing a power installation is anchored near Anchorage and is being used to assist until such time as this hydro power can come in.

The REA projects and the city of Anchorage both would be forced to put in fuel-burning equipment unless this project was under construction.

Mr. NORRELL. You are sure they need it.

Mr. MCPHAIL. I visited the area myself last summer and there is no question in my mind about not only the need for this power but for more power.

RECOVERY OF COST OF PROJECT

Mr. NORRELL. Will you be able to work it out so that our Government will be able to collect the amount of the costs of this project from power users?

Mr. MCPHAIL. The rate that we need in order to pay this project out is about 10 mills, 1 cent per kilowatt-hour, which is about half of the cost of generation by other means in that same area, so there is no question in our minds about ability to pay out the costs of the project.

Mr. NORRELL. In what length of time?

Mr. MCPHAIL. Fifty years, with 3 percent interest.

Mr. NORRELL. You mean that it would be back within that length of time and not part of it canceled out and the rest paid back? You are including the entire cost?

Mr. MCPHAIL. That is correct, sir.

Mr. NORRELL. And you are sure it will be paid within the 50-year period?

Mr. MCPHAIL. Yes, sir.

Mr. NORRELL. And that they need the power?

Mr. MCPHAIL. They need the power and more, too.

Mr. NORRELL. And the only way they can get it is this way, there are no private utilities?

Mr. MCPHAIL. It is the best way. No private utilities are in the area.

USE OF THE POWER

Mr. JENSEN. You will deliver power from the Eklutna power plant for such industries as may move into that area. For instance, those which will manufacture repair parts for airplanes and anything that the Army might need—fighter planes and anything the Army needs immediately.

Mr. MCPHAIL. Indirectly so, Mr. Jensen. We will not retail the power ourselves but the city of Anchorage and the two REA's do serve the area and any industries of that kind. Particularly Fort Richardson, which is close to Anchorage, would be supplied from this power source.

Mr. JENSEN. Of course that was one of the reasons why I was so anxious to get some power produced up there—to make it possible for factories which would build repair parts for our defense program, for our defense equipment. I certainly hope, Mr. McPhail and Mr. Straus and the rest of you, that when that power is made available to Anchorage, that you will have an understanding with the municipality that any defense industry that locates there will get first preference for this power because I am sure that would mean a lot to the defense effort of America—to have sufficient power, or some power, at least that can be used to manufacture the things that we need, at least for our fighting forces. I can see the great need for that. I saw the great need for that when I was up there.

Of course we learned that the town of Anchorage needed electricity and needed it badly. Our Alaska Railroad machine shops need power. They needed it then and they need it now. They have quite a railroad yard up there and there is a lot of repair work that needs to be done on that railroad, on the rolling equipment. Will the cooperative at Palmer have top priority on this power?

Mr. MCPHAIL. Not priority as such. The customers that come under the preference clauses of legislation have equal rights. One of them is the Matanuska Valley Cooperative and the three together have indicated their desire to contract for the entire output of the plant.

Mr. JENSEN. Which three?

Mr. MCPHAIL. Matanuska Valley is one of the three preference customers, the other being Chugach Cooperative and the third the city of Anchorage. Those three between them have applied for 30,000 kilowatts to be divided about 16,000 to the city of Anchorage and 7,000 each between these two cooperatives.

GILA PROJECT, ARIZONA

Mr. KIRWAN. The next project is the Gila project. The allotment for this project for 1952 is $6,870,000 and the estimate for 1953 is $5,582,000, a decrease of $1,288,000. Please insert in the record at this point pages 254 through 258 of your justification and explain the estimate, Mr. Lineweaver.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$53, 162, 824
Total obligations to June 30, 1951		27, 318, 361
Allotment, fiscal year 1952	$6, 870, 000	
Prior year balance available	206, 152	
Total obligations, fiscal year 1952		7, 076, 152
Allotment, fiscal year 1953	$5, 582, 000	
Total obligations, fiscal year 1953		5, 582, 000
Balance to complete		13, 186, 311

JUSTIFICATION OF ESTIMATE

Authorization.—The project, as presently constituted, was authorized by the act of July 30, 1947 (61 Stat. 628).

Location.—The project is located in southwestern Arizona, in the southern portion of Yuma County. Project works extend from the Imperial Dam on the Colorado River to approximately 10 miles south of Yuma, Ariz., and east along the lower reach of the Gila River to approximately 50 miles east of Yuma.

Description.—The project as originally authorized included 150,000 acres in the vicinity of Yuma, Ariz. However, the project as presently constituted includes 25,000 acres on the Yuma Mesa, 15,000 acres in the North and South Gila Valleys, near Yuma, and 75,000 acres in the Wellton-Mohawk division, beginning some 12 miles east of Yuma and extending 50 miles to the east. The primary purpose of the project is to provide a full water supply to 92,700 acres of arid lands and a supplemental supply of 22,300 acres of land presently served either by pump irrigation or by diversion from Laguna Dam. All but 15,000 acres of the land included in the project is at an elevation too high to be served by gravity flow from the diversion point at Imperial Dam, a condition which has required the construction of four main canal pumping plants to deliver water to the distribution systems.

Repayment.—No repayment contracts had been executed by June 30, 1951. Negotiations, however, were well advanced toward execution of contracts with the Wellton-Mohawk irrigation and drainage district, the North Gila Valley irrigation district and the unit "B" irrigation and drainage district, all of which are expected to be consummated in fiscal year 1952.

Status.—By June 30, 1951, construction was largely complete on the project common features and works to serve 20,106 acres on the Yuma Mesa and was well under way on the main canal features of the Wellton-Mohawk division. By June 30, 1952, construction will be complete on the three main pumping plants and the Wellton-Mohawk canal, and the Mohawk canal and Mohawk distribution system will be sufficiently well advanced to begin irrigation deliveries early in fiscal year 1953. A total of 81 farm units comprising 10,389 acres of public land will have been opened to entry on the Yuma Mesa and 9 farm units of 1,300 acres in the Wellton-Mohawk division will have been entered by June 30, 1952.

Work proposed, fiscal year 1953.—The major portion of the fiscal year 1953 program will involve a continuation of construction on the irrigation facilities of the Wellton-Mohawk division. The Wellton canal and the Mohawk canals will be completed and work will continue on the Mohawk unit. Construction will be initiated on the lateral systems of the Wellton and Dome units. Operation and maintenance, farm unit development and construction of additional drainage facilities will be continued. Fifty-two public land farm units totaling 7,700 acres are scheduled for settlement during fiscal year 1953 in the Wellton-Mohawk division.

Justification.—The continuance of construction at an economical rate as presently scheduled will protect the Government investment in carriage works by providing water to an increasing acreage of now arid lands adaptable to year-round production of valuable food and fiber crops.

The total estimated cost of the project has been decreased from $54,171,735 to $50,151,404 (anticipated total obligations $53,162,824). This adjustment is the result of the availability of more accurate estimating data as construction of the project is advanced and the addition to and deletion of certain work from the project program. Work deleted form the project plan comprises facilities to serve the South Gila Valley area and predevelopment work planned as part of the farm unit development activity in the Yuma-Mesa area. Farm unit development work in the Wellton-Mohawk area is planned to be expanded by two development farms. Repairs to the Gila desilting basin, necessitated by Army experimentation, were accomplished at a cost considerably less than originally contemplated.

Schedule of construction program fiscal years 1952 and 1953, Gila Project, Arizona

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Project common features:					
Gila desilting basin	$913,052	$913,052			
Repairs to Gila desilting basin	298,012	297,363	$649		
Gravity main canal, station 0 to 973	2,607,075	2,607,075			
Drains	90,800	57,174	25,800		$7,826
Yuma Mesa division:					
Yuma Mesa pumping station	843,067	909,970	−66,903		
Gravity main canal, station 973 to 1100	420,450	413,506	6,944		
"A" canal	829,300	823,359	164		5,777
"B" canal	402,100	401,843	85		172
"A" laterals	1,091,800	1,074,148	17,652		
B laterals	2,059,250	1,524,898	10,000	$20,000	504,352
North and South Gila Valley laterals	25,647		13,166		12,481
Drains	142,340	63,522	12,000	12,000	54,818
Farm unit development	4,159,516	3,910,106	109,621	27,500	112,289
Yuma housing	252,933	252,933			
Service equipment and miscellaneous	52,862	7,523			45,339
Wellton-Mohawk division:					
Pumping plant No. 1	1,317,500	867,858	246,142		203,500
Pumping plant No. 2	1,720,000	1,004,085	380,915		335,000
Pumping plant No. 3	1,201,600	829,273	248,727		123,600
Pumping plant—Texas Hill No. 1	158,800				158,800
Pumping plant—Texas Hill No. 2	79,900				79,900
Wellton-Mohawk canal	4,809,000	4,504,112	304,888		
Mohawk canal	8,005,000	2,846,181	3,168,523	1,390,296	600,000
Wellton canal	3,588,000	67,198	1,200,802	320,000	
Mohawk unit, laterals	7,571,000	332,092	1,832,181	2,894,257	2,512,470
Wellton unit, laterals	2,385,000	10,836	10,000	840,947	1,523,217
Dome unit, laterals	2,278,000	3,991	10,000	300,000	1,964,009
Texas Hill unit, laterals	1,244,000	725			1,243,275
Wellton-Mohawk canal unit, laterals	548,200	1,089	2,000	10,000	535,111
Ralph's Mill unit, laterals	892,700	846			891,854
Drains	1,011,600	32,237	10,500	11,000	957,863
Farm unit development	547,900	169,002	55,000	89,100	234,798
Wellton housing	450,000	402,991	47,009		
Service equipment and miscellaneous	55,000				55,000
Water users office building	100,000				100,000
Total cost	50,151,404	24,328,988	7,645,865	5,915,100	12,261,451
Construction facilities		390,089	−83,500	−70,000	−236,589
Stores		532,279	−100,000	−75,000	−357,279
Project investigations		502,569	−202,955	−92,100	−207,514
Operation and maintenance during construction	1,412,209	296,209	166,000	279,000	671,000
Transfers, credits, and other expenditures	1,599,211	246,251	172,718	125,000	1,055,242
Total expenditures	53,162,824	26,296,385	7,598,128	6,082,000	13,186,311
Unliquidated obligations		1,021,976	−521,976	−500,000	
Total obligations	53,162,824	27,318,361	7,076,152	5,582,000	13,186,311
Method of financing:					
Allotment, fiscal year 1952			6,870,000		
Prior year balance available			206,152		
Allotment required				5,582,000	13,187,000

GENERAL STATEMENT

Mr. LINEWEAVER. I have a statement Mr. Chairman.

The Gila project in southwestern Arizona consists of 92,700 acres of irrigable semiarid lands lying on the Yuma Mesa adjacent to the city of Yuma and along the lower Gila River for a distance of approximately 52 miles upstream from the junction with the Colorado River. The project is being constructed to permit the irrigation of these lands with Colorado River water and to provide a supplemental water supply from the same source for additional lands presently being irrigated from an inferior quality underground source and partially by an old gravity canal diverting from the Colorado River at Laguna Dam.

Construction of the gravity main canal and of the irrigation system for the Yuma Mesa division of the project has been virtually completed and in operation for some years. A small amount of additional work remains to be undertaken at such times as conditions and developments in that area shall be determined. Work on the Wellton-Mohawk canal from the gravity main canal to pumping plant No. 3 is in the final stages of construction, with operation of the pumping plants scheduled to commence on a limited scale in March of this year. All work on this section of the canal is due to be completed by the end of fiscal year 1952. Work on the Mohawk and Wellton canals, the two principal canals serving the Wellton-Mohawk division, is in progress. Specifications for unit 1 of the distribution system under the Mohawk canal to serve approximately 16,000 acres in the vicinity of Roll have been issued and it is expected that work will get under way during the latter part of February. During the remainder of fiscal year 1952 and in fiscal year 1953 construction will be started on all units of the distribution systems under the Mohawk-Wellton canals which will be capable upon completion of delivering water to 63,100 acres.

If sufficient construction is completed in time to permit delivery of Colorado River water through the canal systems of the Wellton-Mohawk division during the spring and summer of 1952, the landowners will be permitted to obtain irrigation supplies from this source through temporary facilities furnished by them when water becomes available.

During the latter part of August 1951 floodwater from sudden heavy rains in the area succeeded in breaking into the uncompleted work and damaging an extensive portion of the canal. This has caused some delay in the preparation of the canal for initial operation but repairs are in progress and it is expected that sufficient restoration will be accomplished to permit the priming of the canal by the end of this fiscal year.

This project will produce food and fiber products and will contribute substantially to the needs of the area and to the national economy in support of the current defense effort.

I am ready to answer any questions.

EXECUTION OF REPAYMENT CONTRACTS

Mr. KIRWAN. Have any repayment contracts been executed to date?

Mr. LINEWEAVER. An agreement has been reached with the Wellton-Mohawk irrigation district for approximately $40,000,000 repay-

ment and an election will be held on the contract February 26. It is recommended by the directors of the district, and practically all of the landowners have consented to come in, all of the landowners to come into the district so there is no question but what the contract will be approved.

NEED FOR PROJECT

Mr. KIRWAN. Keeping defense interests in mind, principally, could any part of this project be postponed or eliminated?

Mr. LINEWEAVER. We don't think so, Mr. Chairman, because it is in an area that is producing cotton and other fiber and vegetables and other foodstuffs for the area which is increasing in population. Arizona's population has almost doubled in the last 10 years.

Mr. KIRWAN. Mr. Norrell, do you have any questions on the Gila project?

COLLECTIONS FOR IRRIGATION

Mr. NORRELL. I notice the total amount of this project is a little better than $53 million. How much will you collect of that from the irrigation people under your contract?

Mr. LINEWEAVER. Under this particular project for which the funds are now being requested, the Wellton-Mohawk division, which is up the Gila River from the Colorado is a separate area from the Yuma-Mesa division which is composed of public lands and which is being settled by veterans. The $40 million repayment contract is to be executed before the distribution system is started. The remaining repayable costs will be repaid under contract to be made when a district is organized by the settlers on the Yuma-Mesa public lands who are all veterans.

Mr. NORRELL. That is supposed to equal the amount of construction?

Mr. LINEWEAVER. Approximately, with the exception of certain costs which have been recommended for charge-offs due to World War II activities at Yuma Air Base and other activities. A statement will be submitted on that.

(The statement referred to is as follows:)

REIMBURSABILITY SITUATION OF YUMA MESA DIVISION, GILA RECLAMATION PROJECT, ARIZONA

As initially conceived the Gila project contained approximately 585,000 acres, which were considered susceptible of irrigation. Of this total, 150,000 acres were in the first unit, comprising essentially the Yuma Mesa division, under a finding of feasibility approved by the President on June 21, 1937. Of that total of 150,000 acres in the Yuma Mesa division, 11,000 were designated as bottom land near the mouth of the Gila River, subsequently referred to as the north and south Gila Valleys. The enactment by the Congress of Public Law 272 (80th Cong., 1st sess.), the Gila reauthorization bill, limited the development of the Gila project to 115,000 acres, comprised of 75,000 acres in the Wellton-Mohawk division and 40,000 acres in the Yuma Mesa division, of which 25,000 acres are on the Yuma Mesa proper and 15,000 acres in the north and south Gila Valleys.

In 1939, the Gila gravity canal was completed, and work on pumping plant No. 1 to serve the Yuma Mesa lands was well advanced. With the advent of World War II, the Army Air Force selected a tract of 1,420 acres of the most readily irrigated land on the mesa for the site of the Yuma Army Air Base. During certain seasons of the year, prevailing winds from the southeast and from the north created dust storms over the base to such an extent that the Army Air Force appealed to the Bureau of Reclamation for relief in the form of irrigation and cover cropping of strategic areas adjacent to the base, particularly an area

of some 8,000 acres lying southeast of the base. A spokesman for the Army reported that it was estimated approximately a $2,000,000 annual loss was suffered to airplane motors because of the dust conditions. An evaluation of the dust-control work indicates a credit of approximately $4,000,000 could be justified as due the Yuma Mesa division for dust control alone.

The Bureau received clearance from the War Production Board, Office of War Utilities, for priorities for necessary materials to alleviate the dust conditions. The major part of the Bureau's program during 1943 and 1944 was directed toward the maximum relief to the air base. Construction costs during these war years were increased unduly as the result of delays in obtaining supplies and labor and also as the result of issuance of a War Production Board stop order.

The Bureau of Reclamation has recognized since the inception of its development program for the Yuma Mesa, Gila project, that the area presents many agricultural problems unique in the history of farming in this country. Early in 1942 Commissioner John Page appointed the Yuma Mesa predevelopment committee, composed of personnel of the Bureau of Reclamation, the Department of Agriculture, the universities of Arizona and California, and the Bureau of Indian Affairs, which had had some earlier experience in subjugation of somewhat similar desert soils on the Pima Indian Reservation at Sacaton, Ariz. This committee met periodically to consider information accumulated by the University of Arizona on its Gila project farm, and to formulate a plan of development for Yuma Mesa lands.

The principal deficiency of the mesa soils on the Yuma Mesa division of the Gila project is their low water-holding capacity. This is directly related to fertility problems, inasmuch as applications of irrigation water carry certain fertilizers through the readily leached soils beyond the crop root zone. Special agricultural practices were found to be essential. These included modifications of planting and fertilizing practices and adaptations of irrigation methods involving land slope, large irrigation heads, length of run, and width of border. The necessity for far more than ordinary refinement of land leveling was early demonstrated.

Following the procedures as recommended by the predevelopment committee, the Bureau of Reclamation sought as a pioneering undertaking, in response to the direction of the Interior subcommittees of the Appropriation Committees, to prepare approximately 10,000 acres of the Yuma Mesa division for settlement through predevelopment. This area included land on which the dust-control work was undertaken. Predevelopment consists of leveling the land, installing farm ditches, fertilizing, and planting sudan grass and alfalfa. The first 10,000 acres of the Yuma Mesa division proposed for this predevelopment activity comprised, at that time, only one-fifteenth of the area of the Yuma Mesa division. It was anticipated that the per-acre costs for this work on the actual area for which it was undertaken would, because of its pioneering nature, exceed the repayment ability of those lands. It was intended, however, that the experience thus developed would be transferable to the total potential development area of the Gila project, at that time approximating 585,000 acres, so that, spread over the entire area, the costs of development would be reimbursable. As heretofore pointed out, the enactment of Public Law 272, reauthorizing the Gila project, has reduced the area of the now authorized project from 585,000 to 115,000 acres. Of that 115,000-acre total, approximately 30,000 acres are public lands.

On December 30, 1947, the Bureau announced the opening to entry of 4,941 acres of public land, constituting 54 farm units on the Yuma Mesa division of the Gila project. These 54 farm units constitute the total acreage that has been planted to alfalfa and thus fully predeveloped. One tract of 160 acres has been retained by the Bureau for demonstration and further experimental use in cooperation with the Bureau of Plant Industry of the United States Department of Agriculture.

Under the terms of Public Law 272, a repayment period of 60 years was provided for the recovery of the construction costs. Because construction for the Yuma Mesa division is not yet complete, it was not possible to announce in the public notice issued December 20, 1947, the amount of construction or predevelopment expenditures that would be recovered from settlers on a per acre basis. However, the Bureau has made a careful study of the repayment ability of these lands and has determined that $150 per acre for full predevelopment on public lands and $200 an acre for construction costs, on the average, is the maximum that can be repaid during the 60-year period. Estimated repayment of the construction component will be $260 on the best land with a lesser assessment on the remainder. The fact sheet which accompanied the public notice informed appli-

cants for public-land units that the Bureau anticipates that these charges will be applicable.

Notwithstanding that an average total of $350 an acre can be recovered from fully developed public lands, and an average of $200 an acre from privately owned lands for which no predevelopment work was done, the actual construction costs will exceed the above amounts due to the restricted area to be developed as a result of the passage of Public Law 272, Eightieth Congress. Settlement of the Gila project finances also involves other factors, such as the cost of development of the Wellton-Mohawk division, and the allocation thereto of costs in common features. Some carriage capacity in the Gila canal is being purchased for the benefit of certain lands embraced within unit B of the adjacent Yuma auxiliary project. In addition, repayment arrangements have not been fully worked out in connection with all lands situated in the north Gila Valley. No negotiations for service to south Gila lands, except for Warren Act contracts involving a small acreage, have been initiated, due to lack of interest on the part of south Gila farmers who currently depend upon a pumped underground supply. Thus, it will be recognized that there are a number of items resulting in substantially increased costs which are properly allocable to other than the lands of the presently authorized Gila project. These items of construction expenditure are—

(*a*) The cost of dust control for protection provided for the Yuma Army Air Base during the war.

(*b*) The increased wartime costs of those expenditures associated with wartime delays, the issuance of the War Production Board stop order, and other factors.

(*c*) The costs of experimental land and crop development incurred in determination of suitable crops which will benefit lands other than those actually cropped and which were to be spread over the total of 585,000 acres included originally in the Gila project.

(*d*) The cost of project housing built for construction activities which would be set aside to be amortized from rental received.

(*e*) The cost of excess capacity in pumping plant No. 1, the Gila main canal headworks, and other canal structures.

(*f*) Investigational costs from project funds for the 470,000 acres (585,000 less 115,000) originally contemplated for inclusion in the project.

The total estimated cost of the Gila project is $53,162,824, including the cost of repairs to the Gila desilting basin but not a share of the cost of Laguna Dam assumed by the imperial irrigation district under the contract of October 23, 1918, and the Gila project share of Imperial Dam in the amount of $1,553,565. Excluding the cost of desilting basin repairs, but including the cost of Laguna and Imperial Dams amounting to $1,782,807, total project cost is estimated at $54,647,619. Of this amount, $13,095,660 is assignable to Yuma Mesa division costs. These costs are detailed in the attached table, which presents as probably reimbursable $6,888,475, and as nonreimbursable $6,207,185. The nonreimbursable amount is made up of three items as shown in the table attached, and as further explained below:

Nonreimbursable costs

The costs allocated to acreage eliminated by the act of July 30, 1947, totaling $2,100,750, represent the portion of costs that is outside payment capacity. It is justified from the standpoint of costs incurred during the period when the Bureau of Reclamation, for lack of congressional direction as to scope of the ultimate project, was unable to limit costs commensurate with a definitely established project acreage.

The item of $1,670,715 proposed as nonreimbursable is the increased cost of the work included under the original construction contract specifications in effect prior to outbreak of World War II, but required to be completed later by virtue of the original contract having been terminated by wartime regulations. It represents a reduction of about 38 percent in the estimated costs of $4,382,450 for the A and B canals and laterals.

Predevelopment costs not reimbursable amount to $2,435,720, composed of $1,156,990 incurred for farm unit development, and $1,278,730 for farming operations not covered by crop revenue. As explained above, these costs are allocable to dust control for the Yuma Army Air Base, and to the pioneering nature of the task assigned to the Bureau of Reclamation by the Congress to develop lands of such character that new techniques and practices were required to be worked out.

To further explain the attached table, each reimbursable item is discussed hereunder:

Reimbursable costs

The sum of $3,900,746 in construction costs for the Yuma-Mesa unit, part I, consists of $960,436 in common feature costs, and $2,940,310 in costs benefiting only this part of unit 1.

The sum of $314,377 includes $228,675 in common feature costs and $85,702 in costs benefiting solely part 2, the deferred unit. When this unit is developed, these costs would be collectible from the unit lands.

North Gila irrigation district has been allocated $180,955 of Gila costs, composed of $164,902 in common features, and $16,053 for work solely benefiting North Gila. It should be noted that the North Gila district will also pay additional amounts under repayment contract arrangements for works useful to the district which were constructed many years ago as part of the Gila division of the Yuma project.

On the basis of 180 cubic feet per second, the south Gila Valley has been allocated a total of $420,331, made up of $411, 616 in common features and $8,715 in examinations and surveys, and land classification solely of benefit to South Gila.

The item of $456,090 is the proposed reimbursable cost to be borne by the auxiliary project, amounting to $138 per acre for 3,305 acres.

Costs in the amount of $252, 933 are expected to be returned to the Government from receipts from project housing.

Of the predevelopment costs, $1,363,043 is probably reimbursale, composed of $741,150 in anticipated revenue from predevelopment contracts (4,941 acres at $150 per acre), and $621,893 in farming costs, which have been retired by a like amount of crop revenue.

Estimated reimbursable and nonreimbursable construction and predevelopment costs Gila project [1]

	Probably reimbursable	Nonreimbursable	Total
Construction costs:			
Yuma Mesa unit, pt. 1	$3, 900, 746		$3, 900, 746
Yuma Mesa unit, pt. 2	314, 377		314, 377
North Gila Valley irrigation district [2]	180, 955		180, 955
South Gila Valley	420, 331		420, 331
Yuma Auxiliary project	456, 090		456, 090
Costs to be collected from rentals	252, 933		252, 933
Allocated to acreage eliminated under act of July 30, 1947		$2, 100, 750	2, 100, 750
Increased prices due to wartime delays		1, 670, 715	1, 670, 715
Total	5, 525, 432	3, 771, 465	9, 296, 897
Predevelopment costs:			
Yuma Mesa unit, pt. 1	1, 363, 043	[1] 2, 435, 720	3, 798, 763
Grand total	6, 888, 475	6, 207, 185	13, 095, 660

[1] Assigned to dust control, and pioneering and exploratory crop work required; also includes credit of $40 per acre for Yuma auxiliary project.

[2] In addition the North Gila district will pay other amounts under repayment contract arrangements for works useful to the district which were constructed many years ago as part of the Gila division of the Yuma project.

COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

Mr. KIRWAN. We will now consider the Colorado River front work and levee system, Arizona, California, and Nevada. The allotment for this project for 1952 is $1,400,000 and contributions from Mexico of $1,000,000. The estimate for 1953 is $2,007,000 and estimated contributions amount to $1,200,000.

Please insert in the record at this point pages 261 through 265 and explain this request.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$6,057,000
Total obligations to June 30, 1951		433,454
Allotment, fiscal year 1952	$1,400,000	
Contributions	1,000,000	
Prior year balance available	16,546	
Total obligations, fiscal year 1952		2,416,546
Allotment, fiscal year 1953	$2,007,000	
Contributions from Mexico	1,200,000	
Total obligations, fiscal year 1953		3,207,000
Balance to complete		

JUSTIFICATION OF ESTIMATE

Authorization.—The act of June 28, 1946, Public Law 469, (60 Stat. 338) amended previous acts and authorized annual appropriations out of any moneys in the Treasury of the United States not otherwise appropriated to defray the cost of (*a*) operating and maintaining the Colorado River front work and levee system in Arizona, California, and Nevada; (*b*) constructing, improving, extending, operating, and maintaining the protection and drainage works and systems along the Colorado River; (*c*) controlling said river and improving, modifying, straightening, and rectifying the channel thereof; and (*d*) conducting investigations and studies in connection therewith. The remedial measures to preserve the wildlife facilities of the Havasu Lake National Wildlife Refuge were authorized by Public Law 732, Seventy-ninth Congress, second session.

Location.—Activities of the Colorado River front work and levee system conducted under existing authority extend along the lower Colorado Basin from Lee Ferry to the Mexican border, a river distance of 700 miles. Above Lake Mead, the river flows through Arizona, while through the major portion of Lake Mead and below Hoover Dam, the lakes and river form the dividing line between Arizona on the east and Nevada and California on the west. The emergency remedial work on the wildlife refuge is located at the upper end of the Havasu Lake created by Parker Dam.

Description.—The primary purpose of the Colorado River front work and levee system is set forth in the above paragraph under authorization. The construction program includes (*a*) flood protection system—Yuma, a rehabilitation program of existing levees along the Colorado River in the vicinity of Yuma, Ariz., and construction of levees and a floodway channel along the Gila River; also (*b*) investigations, Palo Verde diversion protection, near Blythe, Calif., for determination of a permanent solution to the problem of diversion for this district.

Dredging of the new channel for the Colorado River through the Topock unit of the wildlife refuge will confine the river flow to the west side of the valley and cut off the water now supplying the waterfowl area. The draining of this swamp area will destroy its value as a wildlife refuge and remedial action is necessary. The work proposed at this time is of a temporary nature to meet the emergency and plans will be developed by the Fish and Wildlife Service for the permanent works after further study and investigations.

Repayment.—Funds appropriated for this work are nonreimbursable. Expenditures for work performed on the Yuma levee system will be made from regular appropriations as augmented by transfers from the United States section of the International Boundary and Water Commission. In accordance with the Mexican water treaty of 1944, Mexico has agreed to contribute approximately $2,200,000 toward the improvement of the flood-protective system near Yuma, Ariz. Out of this total the sum of $2,000,000 has been deposited by Mexico with the United States section of the International Boundary and Water Commission. Under the terms of the memorandum of understanding between the Departments of Interior and State, approved June 18, 1945, the Bureau of Reclamation has agreed to construct the Boundary Commission's share of the flood-protective system simultaneously with a general strengthening program of the entire levee system near Yuma. The United States section of the International Boundary and Water Commission has agreed to advance monthly, to a trust or working fund to be established by the Bureau of Reclamation, the estimated value of the work to be performed for the United States section during the succeeding months.

As a revised value of the work performed for the United States section each month becomes known after the end of the month, the Colorado River front work and levee system appropriation will be reimbursed by transfer from the trust or working fund. A final evaluation of the Boundary Commission's share will be made at the completion of each major group of units of the work.

Status.—Construction of the flood protective system for Needles, Calif., has been completed and transferred to an operation and maintenance status. Raising the Yuma levee was initiated in July 1951 and will be continued throughout fiscal year 1952. Contracts are to be awarded and construction initiated on reservation levee, north and south Gila levee, and Gila floodway channel. The Arizona Game and Fish Commission, the Fish and Wildlife Service, and the Bureau of Reclamation have completed an agreement for temporary remedial measures to preserve the Topock unit of the Havasu Lake Refuge. The work will be performed by the Fish and Wildlife Service with funds transferred from the Bureau of Reclamation.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 provides for completion of construction on all features of the flood-protective system—Yuma. Investigations and negotiations in connection with the diversion protection, Palo Verde irrigation district will be completed.

Justification.—Prior to the construction of multipurpose dams on the lower Colorado River, levees had been constructed in the vicinity of Yuma, Ariz., and Needles, Calif., to protect agricultural and urban areas from recurring floods of the Colorado River. Flood hazards were reduced by planned operation of these dams, but river regimen was altered, and river retrogression and aggradation have occurred in different localities, introducing new drainage, flood control, and diversion problems. The work program includes the alleviation of current river control problems and the prevention of future emergencies. In addition, the investigation of the diversion problem for the Palo Verde irrigation district should be completed in order that a definite plan can be established.

The total estimated cost of the project has been decreased from $12,504,000 to $6,057,000 by the transfer to an operation and maintenance status and the elimination from the latest estimate of all completed works. In addition, the construction cost of the Palo Verde diversion dam has been eliminated from the estimate pending agreement between the Palo Verde irrigation district, the Indian service, and the Bureau of Reclamation on the plan to be followed. The reductions have been partially offset by the inclusion of the temporary work on the Havasu Lake Refuge.

Schedule of construction program fiscal years 1952 and 1953, Colorado River front work and levee system, Arizona-California-Nevada

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Palo Verde diversion (investigations only)	$185,000			$185,000	
Havasu Wildlife Refuge (protective works)	185,000		$185,000		
Flood protective system—Yuma	5,687,000	$103,190	2,466,500	3,117,310	
Total cost	6,057,000	103,190	2,651,500	3,302,310	
Construction facilities		1,574	39,426	−41,000	
Stores		6,445	−6,445		
Project investigations		7,805	−10,000	2,195	
Transfers, credits and other expenditures		14,090	−14,090		
Total expenditures	6,057,000	133,104	2,660,391	3,263,505	
Unliquidated obligations		300,350	−243,845	−56,505	
Total obligations	6,057,000	433,454	2,416,546	3,207,000	
Method of financing:					
Allotment, fiscal year 1952			1,400,000		
Contributions by Mexico [1]			1,000,000	1,200,000	
Prior year balance available			16,546		
Allotments required				2,007,000	

[1] Estimated contribution of $2,200,000 from Mexico, in accordance with Mexican treaty of 1944.

Mr. LINEWEAVER. Mr. Markwell will take that one.

GENERAL STATEMENT

Mr. MARKWELL. I will make a brief statement, Mr. Chairman, and then answer any questions.

The work scheduled under this heading in fiscal year 1953 is principally the completion of construction of a flood protective system, consisting of a rehabilitation program of existing levees along the Colorado River in the vicinity of Yuma, Ariz., and construction of levees and a floodway channel along the Gila River in the same vicinity. In accordance with the Mexican Water Treaty of 1944, Mexico has agreed to contribute approximately $2,200,000 toward the improvement of the flood protective system near Yuma, and under the terms of a memorandum of understanding between the Departments of Interior and State, the Bureau of Reclamation is constructing the required works simultaneously with a general strengthening program of the entire levee system near Yuma.

Construction was initiated in July 1951 on the raising of the Yuma levee. A contract was awarded on January 5, 1952, for construction of the reservation levee. A third contract is scheduled to be awarded late in fiscal year 1952 for the north and south Gila levees and the Gila floodway channel. All three of these contracts will be completed in fiscal year 1953, which will complete presently contemplated work on the flood protective system—Yuma.

The 1953 program also includes an expenditure of $185,000 for investigations and negotiations in connection with Palo Verde Diversion Protection near Blythe, Calif. These investigations should be completed in order that a definite plan can be established for the alleviation of the diversion problem of the Palo Verde irrigation district.

REASON FOR DECREASE IN COST

Mr. KIRWAN. Please give us a more detailed explanation of the reduction in the estimated cost from $12,504,000 to $6,057,000.

Mr. MARKWELL. That comes about because of the separation of the Colorado River front work into two items: one of them being construction, the other one being operation and maintenance. This is the construction item. Furthermore, the cost of any future work on the Palo Verde irrigation district intake will not be included in the estimate until the investigation is completed and a revised estimate of cost is made.

Mr. KIRWAN. What is the percentage of completion on the project now?

Mr. MARKWELL. As presently estimated, sir, at the end of the fiscal year, it will be roughly 50 percent completed.

Mr. KIRWAN. Will you be able to finish all the work on this project by end of 1953?

Mr. MARKWELL. All of the work on the levee system around Yuma. We also expect to complete the investigations on the Palo Verde intake.

Mr. KIRWAN. Are there any questions on the Colorado River front work?

Mr. NORRELL. No questions.

Mr. FURCOLO. I have none.

Mr. JENSEN. No questions.

DAVIS DAM PROJECT, ARIZONA-NEVADA

Mr. KIRWAN. The next item is the Davis Dam project, Arizona-Nevada.

The amount allotted to this project for 1952 is $6,572,000. The estimate for 1953 is $1,754,000.

Pages 267 through 273 of your justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$117, 352, 960
Total obligations to June 30, 1951		101, 904, 043
Allotment, fiscal year 1952	$6, 572, 000	
Prior year balance available	2, 125, 749	
Balance available in subsequent year	−1, 528, 661	
Total obligations, fiscal year 1952		7, 169, 088
Allotment, fiscal year 1953	$1, 754, 000	
Prior year balance available	1, 528, 661	
Total obligations, fiscal year 1953		3, 282, 661
Balance to complete		4, 997, 168

JUSTIFICATION OF ESTIMATE

Authorization.—Under the Reclamation Project Act of 1939 (53 Stat. 1187) a finding of feasibility was made by the Secretary of the Interior on April 26, 1941, which was incorporated in House Document 186, Seventy-seventh Congress, first session.

Location.—Features of this project are located in southeastern Nevada, west and central parts of Arizona, and southeastern section of California. The dam and reservoir are located on the Colorado River in Clark and Mohave Counties of Nevada and Arizona respectively, approximately 67 miles below Hoover Dam. The power plant and switchyards are located on the Arizona side of the river. Project transmission lines extend north and south from Davis Dam along the Colorado River from a point near Boulder City, Nev., to Yuma, Ariz., and also extend into central and southeastern Arizona with substations strategically located along the transmission lines.

Description.—The project will provide for better regulation of the Colorado River below Hoover Dam, regulating water for domestic use (including irrigation) within the United States and for delivery of water at the United States-Mexico international boundary as required in article 12 (b) of the Mexican Water Treaty. The project will also provide for the production and transmission of electrical energy. Water storage facilities of the project include Davis Dam and Reservoir (Lake Mohave). Power generation facilities are located in the Davis Dam power plant furnished by five 45,000-kilowatt generators. Transmission facilities consist of a high voltage primary distribution system radiating from the switchyard adjacent to the dam and power plant. The transmission system lines include a connection between the Hoover, Davis, and Parker power plants, the Davis-Mesa-Coolidge line, second lines from Parker to Phoenix, Phoenix to Tucson, and Parker via Blythe to the Gila Drop No. 4 line near Pilot-Knob. Also included in the transmission facilities are the extension line between the first and second Phoenix-Tucson line, the extension from Tucson to Cochise, improvement to the existing system in the Yuma area, and a short extension to provide service to the Wellton-Mohawk division of the Gila project. It is currently planned to enlarge the project substation capacities to provide the most efficient intertie of existing power sources with a steam plant to be built near Tucson by private power companies. The project is designed to have an installed generation capacity of 225,000 kilowatts and 1,054.1 miles of transmission lines. Substations are included in the transmission system to supply power to contractors at a lower voltage.

Repayment.—The reimbursable portion of the construction cost, which amounts to $104,900,066, without the substation additions cost will be repaid from power

revenues. A major portion of this amount, or $91,041,442, is allocated to commercial power, and will be repaid with interest at a rate of three percent. In addition to the above reimbursable amount, the sum of $955,600 will be contributed to the project by the Public Roads Administration for certain highway work. The remaining costs except those for the substation additions have been allocated to irrigation and to the cost of servicing the treaty between the United States and Mexico. The annual cost of the new substations including O&M replacement, interest, and amortization for additions will amount to approximately $228,000. The total increased revenue from the Arizona Power Authority through wheeling steam energy and the use of the new substations is estimated to be $550,000 annually.

Status.—Construction began in August 1942. As of June 30, 1951, the project was approximately 87 percent complete. Davis Dam is functionally complete although work is under way on the spillway stilling basin, Davis power plant is in full operation, with the final generating unit being placed in service on June 16, 1951. All major transmission lines and substations, with the exception of Prescott substation, have been substantially completed and are in operation. Work is under way on all of the remaining transmission facilities except the Davis-Kingman-Needles extension line, and the substation additions. Operation and maintenance buildings are under construction. Preconstruction work will be started on two new substations and the enlargement of four substations during fiscal year 1952.

Work proposed, fiscal year 1953.—During fiscal year 1953, all work will be completed on the spillway stilling basin and on the architectural finish of the dam and power plant. The fiscal year 1953 program also provides for completion of the system operation and maintenance area, the procurement and installation of the second transformer and carrier equipment at the Parker switchyard, additional switching and carrier equipment at the Knob switchyard of the second Parker-Gila line, and additional switching facilities at the Yuma substation. A third circuit of the power supply for the Wellton-Mohawk division of the Gila project will be constructed. Work will continue on the Prescott substation of the Davis-Mesa-Coolidge transmission line and the Tucson and Marana substations of the second Phoenix-Tucson and Coolidge ED–5 crosstie lines. Construction will be initiated on the substation additions and the enlargement of three substations will be completed.

Justification.—The need for power in the area served by the Davis Dam project which existed at the time of the project's authorization, has become more acute since that time. Until the remaining substations, switchyards, and transmission lines are completed, it will not be possible to distribute available project power to meet the increasing power demands by the high priority customers within the area. Design work is well under way on all substations that require increased capacity to serve these top priority power users. Failure to provide additional transmission and substation facilities in these areas will result in serious losses in revenues to the Government and loss of production in crops and industry; and will also seriously hinder the development of arable lands.

The construction of two new substations and the enlargement of seven substations in now included in the project plan to provide a mutually advantageous power integration system for the Bureau of Reclamation, the Arizona Power Authority, and private utilities. This plan revision is brought about by the financing of a 180,000 kilowatt steamplant by privately owned utilities. The steam plant is to be located near Tucson at the end of the Bureau's backbone transmission system thereby providing esxcellent opportunity for wheeling agreements. Construction of the substation additions is programed so as to be completed by the time power becomes available from the new steam plant. The substation additions are essential to avoid wasteful duplication of facilities and to:

1. Provide distribution facilities necessary for expansion of irrigation and defense industries, particularly for copper.
2. To coordinate hydro-steam operation to effect maximum saving of fuel.
3. To reduce over-all system energy losses.

The total estimated cost of the project has been increased from $114,438,000 to $118,902,056 (anticipated total obligations $117,352,960). This increase is primarily due to the inclusion in the present estimate of the cost of the substation additions and the basic magnesium project facilities which were transferred to the Bureau of Reclamation on a nonappropriation transfer basis. The substation additions work is estimated to cost $3,032,400.

Schedule of construction program fiscal years 1952 and 1953, Davis Dam project, Arizona-Nevada

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Davis Dam and Reservoir	$36,994,000	$32,812,099	$2,746,901	$1,435,000	
Power plant	24,206,000	22,678,361	1,093,639	434,000	
Terminal facilities at Davis Dam	4,220,000	3,841,214	378,786		
General plant at Davis Dam	2,095,000	2,034,308	60,692		
Davis-Kingman-Needles 69-kilovolt extension	634,738	272,438		3,800	$358,500
Davis-Mesa-Coolidge 230-kilovolt line	19,133,700	13,702,627	1,243,202	1,145,030	3,042,841
Davis-Hoover 230-kilovolt interconnection	3,802,856	3,634,356	128,500	40,000	
Davis-Parker 230-kilovolt line	2,485,000	2,444,300	35,200	5,500	
Parker 230-kilovolt switchyard	4,174,300	3,081,020	1,066,280	27,000	
Second Parker-Gila 161-kilovolt line	2,658,600	2,197,710	404,890	56,000	
Second Parker-Phoenix 161-kilovolt line	1,812,801	1,079,601	28,500	337,500	367,200
Phoenix substation additions	3,012,000	2,438,085	558,915	15,000	
Second Phoenix-Tucson and E. D. 5 crosstie 115-kilovolt lines	7,137,895	3,864,754	1,007,026	1,280,075	986,040
Tucson-Cochise, 115-kilovolt line	1,347,780	818,675	421,305	13,800	94,000
Yuma 34.5-kilovolt improvements and extensions	1,534,686	854,513	156,023	84,150	440,000
Power supply to Wellton-Mohawk division	1,001,600	613,151	140,849	123,000	124,000
General plant:					
Parker Dam	495,250	408,303	86,947		
Transmission system	127,450		127,450		
System operation and maintenance area	2,029,000	460,897	1,434,103	134,000	
Total cost	118,902,056	97,236,412	11,119,208	5,133,855	5,412,581
Construction facilities		672,367	−357,591	−177,990	−136,786
Stores		2,111,658	−738,690	−125,176	−1,247,792
Project investigations		4,923			−4,923
Transfers, credits, and other expenditures	−1,549,096	−1,933,184	−800,000	−60,000	1,244,08
Total expenditures	117,352,960	98,092,176	9,222,927	4,770,689	5,267,168
Unliquidated obligations		3,811,867	−2,053,839	−1,488,028	−270,000
Total obligations	117,352,960	101,904,043	7,169,088	3,282,661	4,997,168
Method of financing:					
Allotment, fiscal year 1952			6,572,000		
Prior-year balance available			2,125,749	-1,528,661	
Balance available in subsequent year			−1,528,661		
Allotment required				1,754,000	4,997,200

Mr. KIRWAN. Please explain this request.

GENERAL STATEMENT

Mr. MCPHAIL. Mr. Chairman, I have a short statement.

Davis Dam project provides (1) regulation of the Colorado River below Hoover Dam for use within the United States and for servicing the Mexican Water Treaty and (2) the generation and transmission of electric power to the southern parts of California and Nevada and to central and southern Arizona. The power plant has a capacity of 225,000 kilowatts while the 1,400 mile transmission system makes power deliveries possible from Hoover Dam in Nevada to Sochise in southwestern Arizona and the Imperial Valley in California.

Construction began in August 1942. As of January 1, 1952, the dam was functionally complete, although work is under way on the construction of a spillway stilling basin immediately below the dam. The five 45,000-kilowatt generators are in full operation. The major

portion of the transmission lines were also completed but considerable work remained to be done at the substations.

With increased copper production, industrial growth, irrigation needs and associated domestic load growth, the State of Arizona is again faced with load requirements in excess of power available. Since the Bridge Canyon development has been deferred, privately owned utilities are now proposing to finance the construction of a 180,000 kilowatt steam plant near Tucson in the immediate future.

In order to provide for "wheeling" the energy from this steam plant the Bureau is proposing in fiscal year 1953 to initiate construction of two new substantions and increase the capacity of seven existing substations. This arrangement will avoid the duplication of transmission facilities by the private utilities and conserve much critical material. It will provide transmission at a lower cost than any other method and the arrangement is urged by all operating agencies in the area.

Also during fiscal year 1953 work will be completed on the spillway stilling basin, and on finish work around the dam and power plant, bringing to completion all work in the immediate vicinity of Davis Dam.

NEW FEATURE OF PROJECT

Mr. McPHAIL. I would like to mention one new feature in connection with the Davis Dam project. That is the construction of two new substations, and the increasing of the capacity of 7 existing substations, together with a small amount of transmission line. This is to enable the private utilities in the area who are designing a steam plant of about 180,000 to 200,000 kilowatts to make use of the transmission system of the United States for the purpose of transmitting that power to load centers.

DESIRES OF PRIVATE UTILITIES

I also have, for the record, two letters; one from the Central Arizona Light & Power Co. and the other from the Arizona Power Authority indicating their desire that this appropriation be granted so that they can proceed with their plans.

(The letters referred to are as follows:)

CENTRAL ARIZONA LIGHT & POWER CO.,
Phoenix, Ariz., January 11, 1952.

Mr. K. S. WINGFIELD,
Administrator, Arizona Power Authority,
Phoenix, Ariz.

DEAR MR. WINGFIELD: As you know for some time we have been discussing various phases of additional power-plant capacity for our company and the Arizona Edison Co., and, so that the record will be complete, it is desirable that we set forth a summary of the conclusions reached and our progress to date.

Arizona Edison Co. and Calapco are to be merged into a new company—Arizona Public Service Co. Prior to consummation of the merger, both companies found it necessary to make plans for new generating plants. Calapco was planning a plant in its service area near Phoenix; Edison was planning a plant in the Casa Grande-Coolidge area. The respective capacities would have been 60 and 20 megawatts. The cost per kilovolt-ampere installed in these plants was thoroughly investigated, and it was deemed advisable to consider the installation of one large plant strategically located to take care of both companies. Just recently the selection was made of a 100-megawatt unit to be located in a new plant in the vicinity of Red Rock, Ariz.

The selection of the power-plant location was given study in the light of some large mining loads, the principal one being the San Manuel Copper Co. at Manmouth, with an initial load of 30 megawatts and ultimately estimated at 45 megawatts. Also the Silver Bell Mine at 10 megawatts. In addition to this load there is considerable agricultural development in the Casa Grande-Coolidge area requiring electricity for pumping, so that there is a general need for a large power plant in this area—200-megawatt capacity.

In addition to these loads, there are other loads, such as the Bagdad Copper Co. west of Prescott, 15 megawatts; and an estimated increase in irrigation load in the Buckeye area of 15 to 20 megawatts.

Another phase of this proposed power-plant project is the transmission facilities required to get the power to the load. As a result of considerable study it was deemed advisable to work out a scheme and agreement whereby the United States Bureau of Reclamation's transmission facilities in the State could be used for the transmission of power, connecting the new plant to the existing transmission lines and thus avoiding duplication. All of the terms and conditions are covered in the letters of intent between the United States Bureau of Reclamation, Arizona Power Authority, and Calapco.

The United States Bureau of Reclamation, in line with this plan, and the proposed new steam plant will have to provide adoitional facilities at an estimated cost of approximately $3,000,000, of which about one-third is of direct benefit to the system as a whole, covering the installation of a 50-megavolt ampere synchronous condenser at Coolidge, increased circuit-breaker capacity at certain substations, and connection of the Davis 115 kilovolt transmission lines into the switchyard of the proposed new steam plant. Other additional facilities will be needed for service to particular contractors and will be provided from time to time.

The United States Bureau of Reclamation's generating facilities are on the Colorado River and the transmission facilities extend into Arizona, the lines being long transmission lines, so that the location of the power plant on the southern portion of the transmission system is very beneficial. The power plant and the facilities to be provided by the United States Bureau of Reclamation will improve the stability of the entire system, and the additional load to be carried from this power plant will not interfere with other power deliveries or create any additional loss on the part of the United States Bureau of Reclamation.

I am enclosing herewith two tables—(1) Load trends and (2) capabilities of companies—both of which are illustrated on the combined load-trend curve B–5859. You will note in the years 1954 and 1955 that two figures of load are indicated. The lower figure is estimated load excluding the copper-mining loads, and the upper figure includes the copper-mining loads.

In addition there is shown a 6-year and 11-year trend of load and, as you can well see, the first unit will be needed in 1954. Power contracts have been submitted to San Manuel and Bagdad. We expect these negotiations to be completed at an early date, at which time we will place an order for a second unit.

The power plant will be located a little further north of Tucson than originally anticipated, mainly because it gets into the south end of the service area and closer to the load. This will add some few miles of transmission line over the original plan, which I believe is of very minor consequence. As to the effect of the new location on the operation of the transmission system, the analyzer study should indicate whether there are any considerations over and above the original findings.

Since our plans have advanced so far as to selection of the location for the new plant, and we find everything in order on your December 17 letter as pertaining to the wheeling of power, you may now proceed in preparing a draft of contract for transmission of energy from the new power plant.

Very truly yours,

GEO. H. GROH, *Vice President.*

ARIZONA POWER AUTHORITY,
Phoenix, Ariz., January 17, 1952.

Mr. E. A. MORITZ,
Regional Director, Region III,
United States Bureau of Reclamation,
Boulder City, Nev.

DEAR MR. MORITZ: Following receipt of your letter of December 14, 1951, relative to the wheeling of energy from the proposed 200,000-kilowatt steam-electric plant, the Arizona Power Authority addressed a similar letter to the Central Arizona Light & Power Co. A copy of our letter, dated December 17, 1951, is enclosed herewith.

We are now in receipt of a reply from that company, dated January 11, 1952, copy of which is enclosed for your information. The letter advises that they are proceeding with the design and construction of the steam plant to be ready for initial service in 1954. It is planned to contain two 100,000-kilowatt units and the first of these units has already been ordered. The plant will be strategically located for connection to the southern portion of the United States Bureau of Reclamation's Arizona transmission facilities.

Such use of the Bureau's State-wide transmission system will avoid duplication of facilities and the location of the plant will improve the stability of the entire system. It will also permit pooling by the authority of resources within the State and allow service to system loads by means of displacement, thereby enabling the most economical operation of the system and facilitating economy generation by the participants in the pooling operation.

The estimated normal load growth for Arizona together with defense loads in the State, such as new large copper-mining operations, increased agricultural development, and enlargement of the aircraft industry, makes it imperative that additional generating capacity be made available and connected to the Bureau's State-wide transmission system at the earliest time. The additional transmission facilities required on the Bureau's system as a result of the proposed steam plant are estimated to cost $3,000,000, as set forth in paragraph (*d*) of your letter to the authority. It is essential that funds be appropriated, specifications drawn, and contracts executed without delay if such transmission facilities are to be available in time for initial operation of the steam plant.

Accordingly, we request that you proceed immediately to prepare a draft of contract for transmission of energy from the steam plant, including substantially the terms outlined in your letter of December 14 to the authority. At the same time we request that all steps be taken which may be necessary to assure the availability of the additional transmission facilities by the date they will be needed for service from the steam plant.

Sincerely yours,

K. S. WINGFIELD, *Administrator.*

EXTENSION OF PROJECT BEYOND 1953

Mr. KIRWAN. Why can't this project be finished up completely this year?

Mr. MCPHAIL. The facilities, aside from this new addition, are expected to be completed this fiscal year.

Mr. KIRWAN. Why weren't requests made previously for the integrating of your system with the steam plant at Tucson?

Mr. MCPHAIL. The developments on this new steam plant have only occurred in the last 3 months. We have been in negotiation with the interested people including the private utilities during that period to arrive at a feasible plan.

REPAYMENT

Mr. NORRELL. I notice you are getting back $91 million plus from commercial power. What has become of the balance of the cost of this dam? Where does that come from? Is that charged off to flood control or what?

Mr. MCPHAIL. We expect to fully repay the cost of both this dam and the Parker Dam with which it is closely associated from power revenues with the exception of about $10 million which is allocated to servicing the Mexican Treaty. This dam was one that was required under the Mexican Treaty.

Mr. NORRELL. You can do that without reimbursement.

Mr. MCPHAIL. Yes.

BOULDER CANYON PROJECT, ALL-AMERICAN CANAL SYSTEM, CALIFORNIA

Mr. KIRWAN. The next item is the Boulder Canyon project, All-American Canal system, California.

The allotment to this project for 1952 is $3,154,000 and the estimate for 1953 is $420,000.

Please insert in the record at this point pages 276 through 281 of your justification.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$69,055,600
Total obligations to June 30, 1951		60,479,278
Allotment, fiscal year 1952	$3,154,000	
Prior-year balance available	314,883	
Balance available in subsequent year	−1,209,362	
Total obligations, fiscal year 1952		2,259,521
Allotment, fiscal year 1953	$420,000	
Prior year balance available	1,209,362	
Balance available in subsequent year	−119,375	
Total obligations, fiscal year 1953		1,509,987
Balance to complete		4,806,814

JUSTIFICATION OF ESTIMATE

Authorization.—The project was authorized by the act of Congress approved December 21, 1928 (45 Stat. 1057), designated the Boulder Canyon Project Act.

Location.—The project works are located in Imperial and Riverside Counties in southeastern California. Project works extend from the Colorado River near Yuma, Ariz., to the vicinity of Indio, Calif.

Description.—The primary purpose of the project is to provide a full water supply to 431,500 acres in the Imperial Valley from works constructed entirely within the United States and to supply water to approximately 75,000 acres in the Coachella Valley, a portion of which will supplement a failing well supply. Capacity is constructed in the project works to serve additional areas on Pilot Knob Mesa and Imperial West Mesa. Facilities of the project include Imperial Dam and desilting works, Laguna Dam (formerly a feature of the Yuma project), the 80-mile-long All-American Canal, the 124-mile-long Coachella Canal, the Coachella Valley flood-protective works, and the 450-mile concrete-pipe distribution system serving the Coachella Valley. The distribution system for the Imperial Valley was completed prior to the inception of the project.

Repayment.—A contract was executed by the Imperial irrigation district December 1, 1932, by the city of San Diego, Calif., on October 2, 1934, and by the Coachella Valley county water district on October 15, 1934, providing for repayment of construction costs to a limit of $38,500,000, covering Imperial Dam, the All-American and Coachella Canals, and appurtenant facilities. The nonreimbursable Coachella Valley flood-protective works were constructed and the Coachella Valley distribution system is being constructed under a supplemental repayment contract for construction of the distribution system, protective works, and drainage works, dated December 22, 1947, between the United States and the Coachella Valley county water district. The repayment limitation of this contract is $13,500,000. The present total estimated cost for the Coachella Valley distribution system is $17,412,266. The Interior Department Appropriation Act for the fiscal year ending June 30, 1952, provided: "Not to exceed $2,783,000 of the appropriation herein made for construction and rehabilitation, Bureau of Reclamation, shall be expended for completion of construction of the Coachella division of the All-American Canal system, Boulder Canyon project: *Provided,* That any sums thereof so expended in excess of the amount required

to be repaid under the existing contract between the Coachella Valley county water district and the United States shall be repayable by said district to the United States unless said district shall be judicially determined by a court of competent jurisdiction to be not liable therefor." Plans for additional construction on the distribution system are underway and consideration is being given to juducial determination by a court of competent jurisdiction of the payment obligation of the Coachella district as called for in the appropriation act.

Pursuant to the instructions contained in the Senate Appropriation Subcommittee's report on the Interior Department appropriation for fiscal year 1952, significant progress has been made in negotiations with the Imperial irrigation district relative to operation and maintenance of the All-American Canal system. It is not possible at this time to forecast when these negotiations will be completed. For that reason, and because irrigation service to more than a half-million acres of highly productive land must be continued without interruption, the budget includes funds for operation and maintenance by the United States of works now being so operated. Should an agreement be reached whereby funds for operation and maintenance will be furnished by an organization other than the United States Government or such funds be advanced to the Government from an outside agency, all funds not expended will be withdrawn from the project accounts.

The proposed Pilot Knob Mesa development and the potential Imperial West Mesa development are not yet covered by repayment contracts.

Status.—Construction of the All-American Canal system began in August 1934. Construction of the Coachella Valley distribution system was initiated in April 1948. As of June 30, 1951, the Imperial Dam, All-American Canal, and Coachella Canal were substantially complete. The Coachella Valley flood-protective works had been completed and approximately 80 percent of the Coachella Valley distribution system had been completed. During fiscal year 1952 construction of unit 9, part 1, of the distribution system, will be completed, making Colorado River water available to 60,500 acres in the Coachella Valley. The initiation of construction of unit 9, part 2, work preparatory to issuance of construction specifications for unit 8 and opening 1,000 acres of public lands to entry by veterans, are also scheduled in fiscal year 1952. Within the Imperial division of the system, completion of acquisition of right-of-way through Indian lands and ventilation of the desilting works are scheduled. Engineering and economic studies will be undertaken on Imperial West Mesa to determine feasibility of development. Operation and maintenance during construction will be continued on the Imperial Dam and All-American Canal to station 1098 and on the Coachella Canal from stations 0 to 2603.

Work proposed, fiscal year 1953.—Principal activity in the Imperial division will be the completion of the Imperial west mesa definite plan report and continuance, pending completion of an agreement for responsibility, of operation and maintenance on Imperial Dam and desilting works, the All-American Canal to station 1098 and the Coachella canal from station 0 to 2603. On the Coachella division, construction of unit 9, part 2 of the Coachella Valley distribution system is programed for completion and construction of unit 8 will be initiated with 30 percent of the works scheduled for completion in fiscal year 1953. Drainage investigations and farm unit development work in connection with the settlement by veterans of public lands will be continued. All proposed work on the Coachella division in fiscal year 1953 will be financed with carry-over funds.

Justification.—Construction of additional lateral units in the Coachella Valley will make water available to an additional 14,200 acres of highly productive land, most of which is desert land for which there is no developed water supply.

The total estimated obligations for the All-American Canal system have been increased from $67,199,031 to $69,055,600. Upward adjustment of the estimated obligations is result of an estimated increase in obligations of $1,228,292 for the Coachella division and $628,277 for the Imperial division. The over-all revision of the cost estimate is brought about by the deletion of items not properly chargeable to the total cost, the inclusion of appropriate plant in service accounts in the individual program item costs and adjustment of the Coachella distribution unit costs to reflect current cost trends and designs. The increased estimated costs of unit 8 and unit 9, part 2, of the Coachella division, are the result of a 10-percent rise in construction costs and design of distribution facilities to higher standards as indicated necessary from experience gained from construction of other units.

Schedule of construction program, fiscal years 1952 and 1953, Boulder Canyon project, All-American Canal system, California

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
CONSTRUCTION PROGRAM, IMPERIAL DIVISION					
All-American Canal system:					
Imperial Dam and desilting works, 17,355 cubic feet per second	$10,188,574	$10,137,487	$51,087		
All-American Canal, station 50 to 4243, 15,155 cubic feet per second	17,798,988	17,798,988			
Coachella canal, station 0 to 2603, 2,500 cubic feet per second	1,706,940	1,706,940			
Drains	595,717	587,546	8,171		
Experimental farm, near drop No. 3, east mesa	396,621	396,621			
Transmission line, siphon drop to Imperial Dam, 34.5-kilovolt	45,038	45,038			
General property	77,117	77,117			
Pilot Knob Mesa:					
Primary pumping plant, 220 cubic feet per second	619,737		16,000		$603,737
Secondary pumping plant, 100 cubic feet per second	163,899		4,000		159,899
Main canal, 220 cubic feet per second	900,412		6,000		894,412
Distribution system	1,896,090		14,000		1,882,090
Project settlement	60,000				60,000
Subtotal cost, Imperial division	34,449,133	30,749,737	99,258		3,600,138
CONSTRUCTION PROGRAM, COACHELLA DIVISION					
Coachella Valley distribution system:					
Unit 1	1,858,713	1,858,713			
Units 2, 3, and 4	3,110,000	3,110,743	−743		
Unit 5	1,791,553	1,791,553			
Unit 6	2,496,000	2,496,272	−272		
Unit 7	2,497,000	2,450,460	46,540		
Unit 8	1,893,000	33,550	78,000	$661,179	1,120,271
Unit 9, pt. 1	1,150,000	805,502	344,498		
Unit 9, pt. 2	2,197,000	66,844	595,000	1,535,156	
Drainage investigations, Coachella Valley	150,000	28,386	7,000	7,000	107,614
Farm unit development, project settlement	40,000	2,800	15,000	5,000	17,200
Coachella canal, station 2603 to end	9,308,433	9,308,433			
Coachella Valley flood protection	4,547,912	4,547,912			
General properties	343,119	343,119			
Subtotal cost, Coachella division	31,382,730	26,844,287	1,085,023	2,208,335	1,245,085
Total cost	65,831,863	57,594,024	1,184,281	2,208,335	4,845,223
Construction facilities		145,355	−8,000	−5,000	−132,355
Stores		72,145	−4,000	−1,000	−67,145
Project investigations		365,017	69,800	5,000	−439,817
O and M during construction	1,851,624	1,163,422	203,202	415,000	70,000
Transfers, credits, and other expenditures	1,372,113	781,709	60,496	−1,000	530,908
Total expenditures	69,055,600	60,121,672	1,505,779	2,621,335	4,806,814
Unliquidated obligations		357,606	753,742	−1,111,348	
Total obligations	69,055,600	60,479,278	2,259,521	1,509,987	4,806,814
Method of financing:					
Allotment fiscal year 1952			3,154,000		
Prior year balance available			314,883	1,209,362	119,375
Balance available in subsequent year			−1,209,362	−119,375	
Allotment required				420,000	4,687,500

Mr. KIRWAN. Please explain this estimate.

GENERAL STATEMENT

Mr. LINEWEAVER. Mr. Chairman, I will make a brief statement and be ready to answer any questions.

The President's budget includes an estimate of $420,000 for operation and maintenance during construction of the All-American Canal project.

NEGOTIATION WITH IMPERIAL IRRIGATION DISTRICT

As the justification recites, negotiations are now and have been in progress, in pursuance of the directive of the Senate Appropriations Committee (Rept. No. 499, p. 24) under which the Secretary of the Interior is requested to seek an agreement with the Imperial irrigation district for the operation and maintenance of Imperial Dam and the All-American Canal in accordance with the Mexican Water Treaty of 1944.

Following the resignation of Assistant Secretary Warne, who had been designated to conduct the negotiations, Secretary Chapman designated me as his representative to undertake the job of carrying out the directive. Conferences have been held with representatives of Imperial irrigation district looking to a satisfactory agreement which will satisfy the responsibilities imposed on the Secretary of the Interior by the Mexican Water Treaty as stated in the letter of November 3, 1951, of the Secretary of State to the Secretary of the Interior. We feel that an agreement can and will be reached that will protect to the fullest extent possible the domestic interests in carrying out the international considerations.

I am not in a position now to date the time that an agreement will be approved by the Secretary and Imperial irrigation district. At the moment the position of the Bureau of Reclamation and the Department of the Interior is as stated on pages 436–444 of the hearings on the Interior Department appropriation bill for fiscal year 1952.

Should an agreement in a form somewhat similar to that under discussion be reached, the estimate of $420,000 for operation and maintenance during construction of the All-American Canal could be reduced to approximately $60,000. This would cover the cost of operation and maintenance of Imperial Dam, supervision and certain other activities contemplated. Until discussions have come to more concrete understandings, I will abstain from encumbering the record.

RESTRICTIONS IN SENATE REPORT

The Senate Interior Appropriation Subcommittee, in its report on the Interior Department's appropriation bill for fiscal year 1952, said in part as follows:

> The committee has approved the inclusion in the total appropriation from the Colorado River dam fund, Bureau of Reclamation, $191,000 to continue operation and maintenance during construction of Imperial Dam and the All-American Canal including Pilot Knob check and wasteway with the understanding that the use of said funds for this purpose is to be for this one fiscal year pending a determination of the effect of the Mexican Water Treaty of 1944 on the existing repayment contract of December 1, 1932, between the United States and the Imperial irrigation district.
>
> The committee recommends that the Secretary of the Interior enlist the aid of the Department of Justice in promptly exploring the possibility of a contract between Imperial irrigation district and the United States to the end that a mutually satisfactory determination may be agreed upon and that the Imperial irrigation district also promptly join in this endeavor.
>
> The appropriation of funds for operation and maintenance during construction of Imperial Dam and the All-American Canal shall not be considered prejudicial to the interest of the United States or Imperial irrigation district.

ACTION TAKEN

In accordance with the recommendation contained in the subcommittee's report, the Department of the Interior considered the matter with the Department of Justice in July 1951, and early last summer began discussions with representatives of the Imperial irrigation district looking to a solution of pending problems relating to existing repayment contracts with that district, particularly as they are affected by the Mexican Water Treaty of 1944.

On July 16, 1951, Secretary Chapman convened a conference with representatives of the Imperial irrigation district, the Bureau of Reclamation, the attorney general of California, and the Department of Justice. Following that meeting, Secretary Chapman asked former Assistant Secretary Warne to continue the negotiations with the Imperial irrigation district. In accordance with the Secretary's instructions, Mr. Warne held meetings in Washington during July and in Los Angeles during August of 1951

Before Mr. Warne left the Department to accept a foreign assignment with the Department of State in Iran, he summarized the status of discussions up to that time and submitted certain proposals for secretarial consideration. Secretary Chapman again met with representatives of the Imperial irrigation district in Washington on November 20, 1951, to consider the proposals that had been recommended by Mr. Warne with a view to producing clearer understandings and to outline the many areas of substantial agreements. In this conference, agreement was reached in principle on matters for further consideration by the Department and the Imperial irrigation district.

In subsequent meetings held in Washington the first part of January 1952, I am pleased to advise you that good progress has been made in reaching an agreement on outstanding problems. With completion of negotiations at an early date, it is expected that the proposed arrangements can be given effect.

Representatives of the Department of Justice have participated in these respective conferences and have followed the general progress of negotiations.

FUNDS FOR DISTRIBUTION SYSTEM IN COACHELLA VALLEY

Mr. KIRWAN. Are there any funds being requested for the construction of the distribution system in the Coachella Valley?

Mr. LINEWEAVER. No, sir. I have a statement as to why no request is made for Coachella construction funds for fiscal year 1953 together with the statement on the increased cost of the distribution system from the estimate stated last year when the Congress made an appropriation, together with a statement that shows the present status of the situation with respect to the Coachella division construction and a number of exhibits which I will summarize so as not to encumber the record, I will submit the statement for the record and leave the exhibits with the clerk.

Mr. KIRWAN. How much are your carry-over funds on this project?

Mr. LINEWEAVER. The carry-over at the end of 1952, June 30, is estimated at $1,209,362.

Mr. KIRWAN. Why is the amount so high?

Mr. LINEWEAVER. Because as explained in the statement that I will now submit for the record, Mr. Chairman, when the Senate committee recommended and the conferees agreed for the insertion in the bill of $2,785,000, the Department felt, on the recommendation of the Bureau, that it should have an opinion from the Comptroller General as to the authority to proceed with this work without a repayment contract over and above the $13,500,000 covered in the present or 1947 contract.

The first insertion in the record will deal with the estimated increased costs of completing the Coachella distribution system. The second will deal with the actions of the Bureau in connection with the Coachella situation particularly the opinion of the Comptroller General and the request of the Secretary of the Interior to the Attorney General to institute litigation to make the determination as to reimbursability required by the language of the 1952 Appropriation Act on the Coachella appropriation.

(The statements referred to are as follows:)

INCREASE IN CONSTRUCTION COSTS OF COACHELLA DISTRIBUTION SYSTEM

The present total estimated cost of $17,412,266 for the Coachella distribution system included in the fiscal year 1953 budget represents an increase of $1,241,266 over the total estimate of $16,171,000 for this work as reported to this committee during the appropriation hearings last year. On the basis of information furnished in the fiscal year 1952 budget, the Congress appropriated the full amount of $2,783,000 estimated to complete the system. As a result of increased costs the the present estimate exceeds previous appropriations for this work by $1,241,266. The present estimate also exceeds by $3,912,266, the ultimate cost of $13,500,000 that the Coachella Valley County water district contracted to repay under article 9 (c) of the 1947 repayment contract.

The increase in the cost estimate for the distribution system is accounted for by revisions upward in the estimates for unit 8 and part 2 of unit 9 yet to be constructed. These increases, however, are somewhat offset by savings which have been realized through virtual completion of the construction on units 1 to 7, inclusive, and part 1 of unit 9. A comparison of the estimates for unit 8 and part 2 of unit 9 as shown in the budget estimates of last year with the estimates now before you is given in the following tabulation:

	Cost, fiscal year 1952 estimate	Cost, fiscal year 1953 estimate	Increase in estimate
Unit 8	$978,000	$1,893,000	$915,000
Part 2, unit 9	1,772,000	2,197,000	425,000
	2,750,000	4,090,000	1,340,000

The increase in cost of unit 8 and part 2 of unit 9 is due principally to higher construction prices which are estimated to be at least 10 percent more today than they were in January 1951 and to higher standards of construction in order to avoid pipe failures of the type experienced on the units previously completed and to provide for better operation of the systems generally. Among the design changes which have added to the cost of the systems is the substitution of reinforced concrete pipe for nonreinforced pipe in sizes greater than 20 inches in diameter. This change alone has increased the pipe cost from $2.30 per lineal foot to $4.25 per lineal foot, or approximately 100 percent. Other design changes include an increase in the number of flexible joint connections and expansion joints to reduce the possibility of pipe failures and leakage, and an increase in the quantity of excavation determined to be required for the system.

Also, recent studies based on experience gained from operation of the previously completed portions of the system have indicated that additional pumping capacity and regulating valves should be provided in the remaining portions of the system to assure adequate operational flexibility and control.

Although the current estimates for the work remaining to be done, as stated above, are based upon the latest index of construction prices, there is no guaranty that further revision in these estimates can be avoided. If construction costs continue to rise between now and the time that the additional work can be placed under contract and during the course of the contract which would have to be assumed in part by the Government through escalation provision of the contracts, further increases in costs may be encountered. Ultimate determination of the plan and character of the system for unit 8 as a result of discussions now in progress between the Bureau and the Coachella Valley County water district will also undoubtedly affect the present estimate.

Specifications and invitations for bids on the construction of part 2 of unit 9 were issued during the early part of January 1952 and it is expected that contracts will be awarded and work started by the 15th of February.

Under present schedules invitations for bids on construction of unit 8 will be issued early in fiscal year 1953. The preparation of design and specifications for this unit has been necessarily delayed due to it being the last unit scheduled for construction and the uncertainty of funds for the work. With the funds made available in the 1952 appropriation act the work was placed on a firm production schedule but several months will be required to complete the necessary field and design work. If the work can now be carried forward without further interruption, construction of the Coachella system will be completed by November 1953.

Funds in addition to the amounts that already have been appropriated are not being requested in the budget estimate for fiscal year 1953 now before you. However, additional funds will be needed to complete the work if unit 8 and part 2 of unit 9 are to be constructed substantially as planned.

STATEMENT RELATING TO THE MATTER OF COMPLETING CONSTRUCTION OF THE DISTRIBUTION SYSTEM FOR THE COACHELLA DIVISION, ALL-AMERICAN CANAL SYSTEM, BOULDER CANYON PROJECT

The Coachella Valley County water district in 1947 sought the construction by the Bureau of Reclamation of an irrigation distribution system. It was then estimated that the cost of the system, together with certain other related work and investigation all herein referred to as the "distribution system," would be $13,500,000, exclusive of the cost of certain protective works to be accomplished under a nonreimbursable allocation to flood control of $4,500,000. State law governing such a district requires, by analogy to a bond election, a similar vote of the district electorate upon the maximum district obligation to be undertaken in each repayment contract made pursuant to the reclamation law. Accordingly, in the instant case, there was voted the district repayment contract of December 22, 1947, whereby the district undertook to repay to the United States the actual cost of the distribution system, exclusive of the protective works, within the voted maximum sum of $13,500,000.[1]

Because of rising costs it soon became apparent that more than $13,500,000 would be needed in order to complete the distribution system. The Bureau of Reclamation thereupon sought to obtain from the district a supplemental repayment contract increasing the $13,500,000 maximum repayment obligation of the district. The district, however, refused to submit to its electorate the assumption of any additional repayment obligation in connection with the distribution system. It contended that under the 1947 contract the United States was obligated to construct the full distribution system as envisioned at the time the 1947 contract was entered into regardless of whether the cost to the United States in completing the system would exceed $13,500,000, provided, of course, that Congress made the necessary appropriations. On the other hand, the Bureau of Reclamation has taken the firm position that the 1947 contract does not, nor under the law could it, so bind the United States.

This issue having been brought to its attention, in January of 1950 the House Committee on Appropriations, Eighty-first Congress, second session, placed it before a special investigative staff for analysis. That staff's conclusion as to this issue did not support the views of the Bureau of Reclamation regarding the effect of the contract.[2] On the other hand the House Appropriations Committee

[1] For a summary of principal, pertinent provisions of the 1947 repayment contract see hearings before a subcommittee of the Senate Committee on Appropriations, on the Interior Department Appropriations for 1951 (81st Cong., 2d sess.) p. 789.

[2] See the investigative staff's report, Congressional Record, volume 96, pp. 4262-4268, or hearings before a subcommittee of the Senate Appropriations Committee on the Interior Department Appropriations for 1951 (81st Cong. 2d sess.) p. 773. And at pp. 788 to 790 of the hearings last cited appears a statement of the views of the Bureau of Reclamation regarding the 1947 repayment contract.

considering estimates for 1951 (H. Rept. No. 1797, 81st Cong., 2 sess., p. 172) made the observation, in part, as follows:

"* * * no appropriation has been included in the bill for further work on this system. The question is moot as to whether or not the latest contract between the Department and the Coachella Valley County water district requires the Secretary to provide facilities costing in excess of the sum agreed by the district to be repaid. However, there is no lack of ambiguity as to whether the Congress is obligated to make additional appropriations * * *."

This view seems to have been confirmed by the Congress in enacting the final appropriations for 1951, as it did not include funds for the further construction of the distribution system. Moreover, in the first appropriation thereafter made for work on the system in excess of $13,500,000, as contained in the 1952 Interior Department Appropriations Act (Public Law 136, 82d Cong.,), rather than making the overrun nonreimbursable, the appropriation act provision [3] required in substance and effect that it be repaid by the district, unless as a result of the judicial determination of a certain issue the district should be rendered not liable therefor.

The Department of the Interior, by letter dated November 6, 1951, requested the advice of the Comptroller General of the United States as to whether the Secretary was authorized under the appropriation provision to proceed with expenditure of appropriated funds for completion of the distribution system without first securing from the district a supplemental contract conditionally increasing the district's repayment obligation in an amount sufficient to repay the United States for the costs of such completion.

In a decision dated December 7, 1951 (B–106038), a copy of which is appended as attachment A, the Comptroller General advised the Secretary of the Interior that in enacting the appropriation provision previously quoted Congress intended that the distribution system should be completed at the earliest possible date, and that expenditures from the appropriation are authorized to be made without first securing a supplemental contract.

The reclamation law requires the Secretary of the Interior, and by delegation the Bureau of Reclamation, to take all steps necessary to establish contractual arrangements for the repayment to the United States of expenditures of reimbursable funds made in carrying out its provisions. Accordingly, following enactment of the appropriation provision for approximately 2½ months prior to the receipt of the Comptroller General's decision, the Bureau of Reclamation had, been seeking to negotiate with the board of directors of the district on the subject of a supplemental repayment contract. By resolution dated October 9, 1951 the board indicated that it, too, recognized the necessity for a conditional repayment contract in order to establish the necessary legal relationship against which the judicial determination contemplated in the appropriation provision could effectively operate. The Bureau proposed to the district board a contract whereunder the district would assume an additional repayment obligation, subject, however, to the provision that, if it should be determined by a court of competent jurisdiction that the United States was not obligated to complete the distribution system regardless of cost in excess of the existing district repayment obligation under the 1947 contract, the district should be relieved of the conditional supplemental obligation. It also included two other important provisions, one stipulating that the execution of the supplemental contract be authorized by the district electorate as required by California law, and the other requiring the contract to be judicially confirmed as contemplated by both State law and Federal reclamation law.

The district board rejected the Bureau's contract and submitted its own counterproposal which proved unacceptable to the Bureau, primarily because it omitted both provisons last mentioned without which, in the Bureau's view, any such agreement could not be considered valid and enforceable. The district board's insistence on these omissions appears, as indicated by district officials, to be based on the belief that there is grave doubt that there could be attained approval by the district electorate of a supplemental repayment contract of any kind.

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[3] This provision under the heading "Bureau of Reclamation" and captioned "Administrative provisions," s as follows:

"Not to exceed $2,783,000 of the appropriation herein made for 'Construction and rehabilitation, Bureau of Reclamation' shall be expended for completion of construction of the Coachella division of the All-American Canal system, Boulder Canyon project: *Provided*, That any sums thereof so expended in excess of the amount required to be repaid under the existing contract between the Coachella Valley County water district and the United States shall be repayable by said district to the United States unless said district shall be judicially determined by a court of competent jurisdiction to be not liable therefor."

The Secretary of the Interior by memorandum dated November 21, 1951, instructed the Commissioner of Reclamation to proceed with expenditure of the appropriated funds, should the requested Comptroller General's opinion hold them available without prior additional agreements with the district, toward completing the distribution system. That memorandum also instructed the Commissioner that steps should be taken promptly toward bringing about the judicial determination anticipated in the language of the appropriation provision. Finally it included an instruction, compatible with requirements of the reclamation law, that unless the court should hold that the United States is obligated under the 1947 contract to complete the distribution system, regardless of cost, thereby in effect making part or all of the cost of the remaining distribution system works nonreimbursable, those works which were constructed at a cost greater than existing repayment contract coverage, were not to be made available for the delivery of water until a satisfactory supplemental repayment contract with the district for all reimbursable costs had been validated.

The Bureau's letter of December 12, 1951, to the district enclosed a copy of the Comptroller General's decision of December 7, and informed the district of the substance of the departmental instruction, already mentioned, and that the Bureau would proceed accordingly within the limit of available funds. It explained, furthermore, the need for a continuation of negotiations, with the Bureau's full cooperation, for a supplemental repayment contract to establish the district repayment obligation, contingent upon the pertinent court determination. This was in recognition of the possible eventuality of a future judicial determination adverse to the district's position and the manifest difficulty which, after the full overrun expenditure had been made and the distribution system had been completed, would be attendant upon efforts to obtain a supplemental repayment contract, conditional or otherwise, dependent as it is for its validity as a district obligation, upon a vote of the district electorate. The Bureau's letter of January 9, 1952, invited the district's attention once more to the departmental instruction regarding the nonavailability of works, in relation to a supplemental repayment contract.

By its letter of December 26, 1951, addressed to the Bureau's regional director, the district emphasized its view, in substance and effect, that the action of the Congress in enacting the appropriation provision and the subsequent Comptroller General's decision had the effect of dispensing with all requirement for a supplemental repayment contract of any kind prior to completion of the distribution system.

In connection with the prospective judicial determination previously referred to, the Solicitor of the Department of the Interior on December 29, 1951, formally requested the Attorney General of the United States to take such steps as he might deem appropriate, and as promptly as practicable, toward attainment of the evident objective of the Congress in the matter of procuring this judicial determination.

Early in the Bureau's negotiations with the district following enactment of the appropriation provision the district board had been apprised of the further complicating fact that, principally because of rising costs, the original estimate of the amount needed for completing the distribution works had been revised upward by a substantial amount so that additional funds over and above the $2,783,000 provided by the 1952 Interior Department Appropriation Act would be required. Accordingly, the Bureau's letter of December 12, 1951, advised the district that this would be brought to the attention of Congress when the appropriations for the fiscal year 1953 are under consideration. That letter was acknowledged by the district's letter of December 21, 1951, which expressed the district's view that the decision of the Comptroller General had cleared the way for completing the project, provided that Congress would appropriate whatever additional money is needed, a request for which the district advised, it presumed the Bureau would include in the 1953 budget requests. To this the Bureau by letter of January 9, 1952, responded by advising the district that, among other things, because of the time element in relation to the submission of estimates for inclusion in the 1953 budget requests, it would not be feasible to comply with the district's request for inclusion therein of a request for additional funds for the distribution system. The same letter confirmed earlier advice that the Bureau would make to the appropriate committee of Congress considering the 1953 appropriations, a full disclosure of the current situation, including the fact that the current estimates are in excess of the amount appropriated for 1952 for completion of the distribution system.

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington 25, D. C., December 7, 1951.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: Reference is made to a letter dated November 6, 1951, from the Assistant Secretary of the Interior, requesting a decision as to whether, under the circumstances recited therein, you are authorized to proceed with expenditure of appropriated funds to complete the Coachella distribution system, as described in contract No. 11r–781, supplemental, dated December 22, 1947, between the United States and the Coachella Valley County water district, without first securing a supplemental contract thereto which would increase the existing repayment obligation of the district in an amount sufficient to repay the United States for the costs of such completion.

The above-described contract provides for the construction by the Bureau of Reclamation of the subject irrigation distribution system and for repayment by the district to the United States of the actual costs, not exceeding $13,500,000, of the work to be performed by the United States. It is stated that, because of increases in the prices of materials and labor, the actual costs to the Government of completing this contract will exceed the repayment obligation of the district thereunder and it is the view of the Bureau of Reclamation that (1) under the subject contract the United States is not, nor, under powers vested in you by the applicable provisions of law, could it be so obligated to perform the additional work necessary to complete the distribution system without assurances of repayment; and (2) that unless Congress specifically provided otherwise, the Bureau would have to insist on a repayment contract covering expenditures beyond the amount of the existing repayment obligation of the district.

The Interior Department Appropriation Act for 1952, Public Law 136, Eighty-second Congress, includes the following provision:

"Not to exceed $2,783,000 of the appropriation herein made for 'Construction and rehabilitation, Bureau of Reclamation' shall be expended for completion of construction of the Coachella division of the All-American Canal system, Boulder Canyon project: *Provided*, That any sums thereof so expended in excess of the amount required to be repaid under the existing contract between the Coachella Valley County Water District and the United States shall be repayable by said district to the United States unless said district shall be judicially determined by a court of competent jurisdiction to be not liable therefor."

The legislative history of this act discloses that the above-quoted provision was adopted only after complete and thorough consideration. In the hearings thereon before the subcommittee of the Committee on Appropriations, House of Representatives, pages 437 and 438, it was stated that no funds were being requested by the Bureau of Reclamation for the completion of the Coachella division of the All-American Canal system. In explanation thereof, Mr. Nelson of your Department stated as follows:

"On the Coachella, in the matter of the repayment contract they had a limitation of their obligation of $13.5 million. Last year the Congress appropriated up to the amount of the $13.5 million, and what we are going to do beyond that is a matter of further negotiation. We have felt that we could not go further than the $13.5 million without a supplemental contract or some agreement with respect to the repayment beyond that.

* * * * * * *

"We felt the contract limited us, Mr. Norrell, to ask for only $13.5 million. The district takes a different view, and I believe the investigators for the committee last year submitted a report that took a different view from ours."

In the hearings before the subcommittee of the Committee on Appropriations, United States Senate, pages 1335–1361, the discussion on the request by the representatives of the Coachella Valley water district that funds be appropriated for the completion of the work contracted for included reference to the validity of the contract. In that connection, it was concluded that the question was one of law to be decided by the courts. The managers on the part of the House conferees, appearing in the conference report of July 30, 1951, on the Interior Department appropriation bill, 1952, recommended as follows:

"Amendments Nos. 78, 79, 80, 81, 82, and 83—Coachella distribution system: Authorize expenditures of not to exceed $2,783,000 as proposed by the Senate, instead of not to exceed $1,684,000 as proposed by the House, for completion of construction of the Coachella division of the All-American Canal system; make the expenditure of such funds mandatory as proposed by the Senate, instead of permissive as proposed by the House; and instead of requiring a definite repayment

arrangement in advance of expenditure as proposed by the House, adopt the proposal of the Senate that such expenditure shall be repayable unless it shall be judicially determined by a court of competent jurisdiction that the irrigation district is not liable therefor."

In view of the entire legislative history of the subject provision and its unambiguous language, it is apparent that Congress intended that the Coachella distribution system be completed at the earliest possible date and that the question as to the validity of the existing contract and the obligations created thereunder be left for subsequent determination by a court of competent jurisdiction.

Accordingly, I have to advise that there is ample authority for you to proceed with expenditure of the appropriated funds designated for use in completion of the Coachella division of the All-American Canal system, as described in contract No. Ilr–781, Supplemental, dated December 22, 1947, without first securing a supplemental repayment contract.

Sincerely yours,

LINDSAY C. WARREN,
Comptroller General of the United States.

STATUS OF CONSTRUCTION

Mr. LINEWEAVER. The reply from the Comptroller General was received early in December and the advertisement for bids, for the completion of unit 9 was issued on January 7. The bids are expected to be received early in February, and we expect to begin work immediately thereafter. On the completion of unit 9, that will result in some delay. These factors account for the estimated carry-over.

Mr. KIRWAN. Do you have any questions, Mr. Norrell?

REPAYMENT QUESTION RAISED LAST YEAR

Mr. NORRELL. Isn't this the project about which we had quite a bit of discussion last year?

Mr. LINEWEAVER. Yes, sir. The House committee recommended, and the bill as it passed the House contained a provision, that the additional funds of about $1,600,000 recommended by this committee should not be expended until a repayment contract was secured.

The Senate amended that on this subject and the appropriation act as passed was to this effect: that not to exceed $2,783,000 was appropriated and shall be expended for completion of construction of the Coachella division provided that any sums thereof so expended in excess of the amount required to be repaid under the existing contract between the Coachella Valley County water district and the United States, shall be repayable by said district to the United States unless said district shall be judicially determined by a court of competent jurisdiction to be not liable therefor.

Mr. NORRELL. What has been done?

Mr. LINEWEAVER. The Secretary of the Interior has requested the Attorney General to institute appropriate proceedings to make that determination concurrently with the expenditure of the money.

Mr. NORRELL. Has suit been filed?

Mr. LINEWEAVER. No sir, it has not.

Mr. NORRELL. How many years longer will it take to file the suit?

Mr. LINEWEAVER. Off the record, Mr. Chairman.

(Discussion off the record.)

Mr. NORRELL. On the record. I think some of the members of the committee would like to have a definition, then, from you as to the difference between time and eternity.

Mr. LINEWEAVER. I am pretty good, but I would defer the answer to that to some of the lawyers and members of the committee.

Mr. KIRWAN. By all means to the lawyers.

COMPLIANCE WITH WISHES OF CONGRESS

Mr. NORRELL. Have you complied with the wishes of the Congress regarding the expenditure of this money?

Mr. LINEWEAVER. As I stated, we have advertised for bids for the completion of unit 9, and the contract will be awarded in February. We are proceeding with the accumulation of the necessary data on which to advertise for the construction of unit 8, to the extent of which funds are available. As my statement on the increased cost shows, the present estimate will exceed the $2,785,000 appropriated by the Congress last year, by approximately $1,340,000. And we will be prepared to proceed as the Congress directs us to with respect to this additional $1,340,000.

MONEY APPROPRIATED TO COMPLETE PROJECT

Mr. NORRELL. Did Congress think that money appropriated last year would complete this project?

Mr. LINEWEAVER. Yes, sir. At that time the estimate that we then had was such that we thought that the funds would complete the system, based on the information that was then available. I may say that with respect to this figure of $1,340,000 increase, that the final figure may not be that large because of the probability of a change in plans for the system to serve unit 8, which we hope will reduce that amount.

Mr. NORRELL. Is there any way you know of that the committee could supply you with enough money to complete this project so we would not have to look at it every year?

INCREASED CONSTRUCTION COSTS

Mr. LINEWEAVER. Well, Mr. Norrell, the question of increased construction costs is something that the Bureau of Reclamation with all of its facilities and brains and engineering talent has not been able to control.

Mr. NORRELL. In view of what you said, that is, what you estimated last year it would cost you to complete it and what you say you need for another year, the cost has considerably increased over and above the national average, hasn't it?

Mr. LINEWEAVER. I believe that is probably true, Mr. Norrell. I have not had the national average applied to this figure. But the reexamination that is now being made of unit 8, and as I state, we hope—though we can give no assurance of the probability that it will be the case—that the actual cost will not be as great as that when the final plans and the bids are in.

EFFECT OF NO FURTHER APPROPRIATIONS

Mr. NORRELL. What would be the consequences if we did not appropriate any money after you use this money? What would happen?

Mr. LINEWEAVER. We would go as far as we could to complete a usable system with what money is available.

Mr. NORRELL. I know you would, but what would be left undone or not done?

Mr. LINEWEAVER. There would probably be several thousand acres of land in unit 8, which would not receive distribution service through the system.

Mr. NORRELL. That would be the only consequence that you estimate right now or recall at this time?

Mr. LINEWEAVER. Yes, sir.

FUNDS ALLOWED LAST YEAR TO COMPLETE PROJECT

Mr. JENSEN. If my memory serves me right, the Congress last year appropriated the amount which the Coachella irrigation district asked for and we did that because the representatives of the Coachella Valley district said, before this committee, that if we would appropriate that much money, the Coachella irrigation district would then complete the job regardless of how much it cost. And they would sign up with the Government; that the Government had lived up to its responsibilities. Does my memory serve me right or does it not?

Mr. LINEWEAVER. I do not recall, Mr. Jensen, as to the representatives of the Coachella district agreeing to assume the responsibility for completing the remainder of the system. As I recall, their statement was repeatedly—and I know they made it to us—that they felt that the Government was responsible, or, rather the Bureau of Reclamation was responsible under the contract of 1947 to complete the system regardless of the fact that the cost exceeded the $13,500,000 repayment coverage.

Mr. JENSEN. I remember that too but it was a compromise which they made. I think you will find, Mr. Lineweaver, the testimony will bear me out in the statement I have just made. We had so much talking about this thing I do not believe that I would forget.

Mr. LINEWEAVER. May I make this reference, Mr. Jensen? The district would have to speak for themselves on that. The committee in its report submitted a compromise plan in which they said the funds in the bill—that is $1,684,000 that the House committee recommended—and the committee in its report at page 12——

TOTAL AMOUNT APPROPRIATED

Mr. JENSEN. Just a moment, that $1,684,000 brought the amount that Congress appropriated for that project up to $13,500,000.

Mr. LINEWEAVER. It was in excess of that figure.

Mr. JENSEN. In excess of the $13 million that we had already appropriated?

Mr. LINEWEAVER. Yes. The Congress had already appropriated up to approximately the $13,500,000.

Mr. JENSEN. Without the $1,684,000?

Mr. LINEWEAVER. Yes, sir. The discussion was over the amount in excess of the $13,500,000 to complete the system as it was described in the exhibit A attached to the contract.

COMMITMENT OF COACHELLA WATER DISTRICT

Now, if I may clear up the point that you raised—the funds in the bill, you understood, were provided to complete construction of unit 9 of the distribution system by the Bureau of Reclamation in accordance with the plan contained in exhibit A, of the contract between the Coachella water district and the United States. And your view is that this action contemplated that unit 8 of the distribution system be constructed by the water users.

Mr. JENSEN. That is right.

Mr. LINEWEAVER. But I am not aware of any commitment that the water users of the Coachella Valley—and I think I am pretty familiar with their representations—that they ever agreed to do that.

Mr. JENSEN. I still think I am right. I think they will come before this committee again and testify to that statement.

Mr. LINEWEAVER. They may have made that statement, but I do not recall that they made it to us.

Mr. JENSEN. They were willing to do that in order to get this thing cleared up and to get that water made available to their land which was suffering then because of a shortage of water. They estimated that they could afford to make that deal because of the great need for water and because of the great productive capacity of that area which is almost entirely a date-growing area. In fact, I think they produce about 90 percent of all the dates produced in the United States.

Mr. LINEWEAVER. Yes, sir. The record will speak for itself, Mr. Jensen. But may I just make this observation, that since the opinion of the Comptroller General came down, we have received communications from the district in which they urged us, or said they assumed we would request the Budget Bureau for the necessary funds beyond $2,785,000 that was appropriated in the 1952 bill to complete it. Our reply was that it was not feasible for us to make that request to the Budget Bureau, but that we would lay the whole facts before both committees. So from that correspondence, I would assume that they did not agree to complete unit 8.

Mr. JENSEN. You have not yet let a contract.

Mr. LINEWEAVER. We are going to let one to complete unit 9 in February.

PERSONNEL IN COACHELLA OFFICE

Mr. JENSEN. How many people do you have on the payroll out there? That was worrying them more than anything else.

Mr. LINEWEAVER. We have reduced the force at the Coachella office materially, Mr. Jensen, and the force there now is only adequate to complete the investigations and secure the necessary field data to prepare the specifications, to award the contract for unit 9, and to service the prospective contracts for the completion of unit 9. I think something like 40 people are on the payroll at that office now.

Mr. JENSEN. Of course that is all charged to the irrigation district. Naturally they complain about it. Also do you have anybody in the Banning office?

Mr. LINEWEAVER. No, sir; that office has been closed for a year or 18 months.

Mr. JENSEN. There were 30 or 40 people from there charged to Coachella Valley.

Mr. LINEWEAVER. The reason for that was that instead of having the design work for the first seven units done at Denver, or most of the seven units, we established offices at Banning, I think as a result of suggestion of the committee that we should not concentrate so much of our work in Denver.

Mr. JENSEN. I certainly hope that we can get this whole thing straightened out in this bill and get an understanding so as to get that job done and away from us.

Mr. LINEWEAVER. The Bureau of Reclamation joins fervently in that hope, Mr. Jensen.

NEGOTIATIONS WITH IMPERIAL IRRIGATION DISTRICT

Mr. JENSEN. What is the situation with respect to the All-American Canal project in which we must cooperate with the State Department, because of the water which Mexico is entitled to?

Mr. LINEWEAVER. Mr. Jensen, in the statement I made, I said that in accordance with the instructions of the Senate committee last year, the Secretary of the Interior directed that negotiations be opened with Imperial irrigation district seeking to reach an agreement that would permit him to discharge the responsibilities imposed upon him by letter of November 3, 1950, from the Secretary of State. Those negotiations were opened by former Assistant Secretary Warne, and they had not been completed when he resigned from the Department in October or November. Subsequently on November 20, Secretary Chapman designated me to take up the negotiations and since that time we have had several conferences with the Imperial irrigation district representatives. Substantial progress has been made toward reaching an agreement and we are very hopeful that within a very short time an agreement will be reached by which this $420,000 estimate that is now in the bill or has now been sent up by the Budget Bureau will not be necessary. If agreement as is now indicated, should be reached, only about $60,000, or somewhere in that neighborhood, would be required to be appropriated to the Bureau in this connection.

Mr. JENSEN. That is all, Mr. Chairman.

CACHUMA PROJECT, CALIFORNIA

Mr. KIRWAN. The next project is the Cachuma project, California.

The amount allotted to this project in 1952 is $10,000,000. The estimate for 1953 is $6,270,000.

Please insert in the record pages 285 through 289 of your justification and explain this request.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$34, 193, 400
Total obligations to June 30, 1951		13, 039, 445
Allotment, fiscal year 1952	$10, 000, 000	
Prior year balance available	331, 455	
Total obligations, fiscal year 1952		10, 331, 455
Allotment, fiscal year 1953	$6, 270, 000	
Transfer to project	2, 230, 000	
Total obligations, fiscal year 1953		8, 500, 000
Balance to complete		2, 322, 500

JUSTIFICATION OF ESTIMATE

Authorization.—The Cachuma project was authorized pursuant to a finding of feasibility which was submitted to the Congress on March 24, 1948.

Location.—The project works are all located in southern portion of Santa Barbara County. The service area is on the narrow coastal plain between the Santa Ynez Mountains and the Pacific Ocean.

Description.—The primary purpose of the project is to provide additional amounts of water to maintain existing irrigation, suburban and urban developments, and to permit normal future expansion for the city of Santa Barbara and the Goleta, Montecito, Summerland, and Carpinteria County water districts. Facilities of the project include Cachuma Dam and Reservoir; Tecolote tunnel; south coast conduit; Glen Anne, Lauro, Ortega, and Carpinteria regulating reservoirs; and distribution systems for Goleta, Carpinteria, and Summerland County water districts. The project is designed to furnish a water supply for 29,650 acres and an ultimate minimum of 10,300 acre-feet of water per year to the city of Santa Barbara.

Repayment.—A contract under sections 9 (e) and 9 (c) (2) of the Reclamation Project Act of 1939 has been executed with the Santa Barbara County Water Agency under which the costs of all works except the distribution systems will be returned to the United States. Contracts for recovery of costs of construction of the distribution systems under section 2 (d) of the Reclamation Project Act of 1939 are now being negotiated. Contract with the Goleta County water district has been approved as to form by the Secretary. The contract with the Carpinteria County water district has been negotiated and is scheduled for approval as to form by the Secretary of Interior early in fiscal year 1952. Contract negotiations are now under way with the Summerland County water district and are scheduled for early completion.

Status.—Construction began on February 7, 1950. As of June 30, 1952, the project will be approximately 68 percent complete. The Goleta section of the south coast conduit and Lauro regulating reservoir will have been completed. Work will be under way on Cachuma Dam, Tecolote tunnel, the Carpinteria section of the south coast conduit, including Sheffield tunnel, Glen Anne regulating reservoir, Ortega regulating reservoir, and Carpinteri regulating reservoir. Starting July 31, 1951, water encountered in excavating Tecolote tunnel, amounting to 3,000,000 to 4,000,000 gallons per day, is being delivered through the Goleta section of the south coast conduit to Santa Barbara and the Montecito County water district for the relief of a serious water shortage in those areas. Starting November 3, Tecolote tunnel water in excess of that which Santa Barbara and the Montecito district could absorb through their existing facilities was delivered to users in the Goleta County water district in varying amounts as requested.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for the completion of work on all features of the project except the distribution system. Construction will be initiated on the Goleta, Carpinteria, and Summerland sections of the latera's with the view of completing the project and making water available for the 29,650 acres in fiscal year 1954.

Justification.—There is urgent need for additional water in the Carpinteria, Summerland, and Goleta County water districts, embracing some 24,000 acres of irrigable land, of which 10,600 acres are now being irrigated with water pumped from the underground storage basin. The draft on the underground supply is about 9,900 acre-feet per year, whereas the average annual natural replenishment is approximately 6,100 acre-feet. This continuous overpumping is lowering the groundwater level, with definite hazard of salt water instrusion to the extent that one-third of the irrigated acreage may soon have to revert to a dry-farmed status. The Montecito County water district, supplied in most part by water from Jamison Lake formed by Juncal Dam on the headwaters of the Santa Ynez River and to a lesser extent by pumping from underground storage is in a rather desperate situation due to the continued drought and the exhaustion of reservoir storage. The situation has been alleviated to some extent by the delivery of water developed in Tecolote tunnel through the recently completed Goleta section of the south coast conduit, but this supply is far less than the minimum needs and water rationing remains in effect. The city of Santa Barbara was until recently almost entirely dependent for its water supply on the yield of Gibraltar Reservoir on the Santa Ynez River. However, the estimated normal safe yield of the reservoir is inadequate for the present population of the city. Due to successive years of practically no runoff, the reservoir storage has become virtually exhausted

and resort has been had to pumping from the underground storage basin beneath the city. The yield of the wells is limited and that of some has undergone an alarming decrease. Some relief has recently been afforded by delivery of water developed in Tecolote tunnel jointly to the city and the Montecito district, but even with this additional supply a further decrease in the yield of the wells will present a problem for which the only answer is water rationing. Early completion of the construction of the project will relieve these critical conditions.

Furthermore, by the end of fiscal year 1952, work will be well advanced and a substantial sum will have been invested in project facilities. In order to realize a return on this investment at an early date, the work should proceed as rapidly as economically and practically possible.

The total estimated cost of the Cachuma project has been increased from $31,520,000 to $34,399,000 (anticipated total obligations $34,193,400). This increase is due to changes in tunnel supports for the Tecolote tunnel necessitated by unfavorable geological conditions encountered during excavation, increases in the cost of materials and labor, and availability of more accurate estimating data.

Schedule of construction program, fiscal years 1952 and 1953, Cachuma project, California

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Cachuma Dam and Reservoir	$13,063,000	$4,628,053	$5,939,000	$2,495,947	
Tecolote tunnel and access road	8,047,000	3,266,214	2,600,000	2,180,786	
South coast conduit:					
Goleta section	2,761,000	1,760,490	898,000	102,510	
Carpinteria section	3,359,000	111,284	1,707,916	1,539,800	
Regulating reservoir:					
Glenn Anne	934,000	74,922	546,000	313,078	
Lauro	1,158,000	248,292	909,708		
Ortega	345,000	9,319	113,000	222,681	
Carpinteria	238,000	2,749	113,000	122,251	
Laterals:					
Goleta district	2,800,000	26,183	343,000	1,277,475	$1,153,342
Carpinteria district	1,450,000	8,011		258,000	1,183,989
Summerland district	244,000	2,528		87,472	154,000
Total cost	34,399,000	10,138,015	13,169,624	8,600,000	2,491,331
Construction facilities		311,427	−78,000	−80,000	−153,427
Stores		12,804	7,000	−10,000	−9,804
Project investigations		202,267	−192,267	−10,000	
Transfers, credits, and other expenditures	−205,600	−125,565	−74,435		−5,600
Total expenditures	34,193,400	10,538,978	12,831,922	8,500,000	2,322,500
Unliquidated obligations		2,500,467	−2,500,467		
Total obligations	34,193,400	13,039,445	10,331,455	8,500,000	2,322,500
Method of financing:					
Allotment, fiscal year 1952			10,000,000		
Prior year balance available			331,455		
Transfer to project				2,230,000	
Allotments required				6,270,000	2,322,500

GENERAL STATEMENT

Mr. MARKWELL. May I make a brief statement and answer questions on Cachuma.

As set forth in hearings before this committee last year, the Goleta, Montecito, Summerland, and Carpinteria County water districts in the Cachuma project area are suffering from acute water shortages and desperately need project water. This situation has been alleviated, to some extent, in the Goleta and Montecito districts by the delivery of underground water which is being encountered in the excavation of the Tecolote tunnel. While we anticipated these water deliveries when planning the project, it was not intended to be a

permanent source of water for the project area. A dependable supply of water will be available to the districts when the Cachuma Reservoir is completed and deliveries can be made through the tunnels and conduits of the project. It is necessary that adequate funds be available so that all project features may be completed as quickly as possible, to support the population, now rapidly increasing, which is assisting in the production of defense materials.

Construction on this project, which began in February 1950, will be approximately 68 percent complete by June 30, 1952. The fiscal year 1953 program provides for the continuation and completion of Cachuma Dam and Reservoir, Carpinteria, Ortega, and Glen Anne regulating reservoirs, Tecolote tunnel, and both sections of the south coast conduit. Completion of these features will allow storage works to be operable during the winter of 1952–53.

The distribution system repayment contract has been approved as to form with the Goleta County water district; negotiations have been completed with the Carpinteria County water district and a contract is expected to be approved as to form during the first part of 1952; and negotiations are scheduled for early completion with the Summerland County water district. Funds are required for preconstruction and construction work to be initiated on these systems so that water deliveries can be made during the 1954 irrigation season.

BENEFITS RECEIVED

Mr. KIRWAN. What is the extent to which the water district benefited by this project?

Mr. MARKWELL. The water service contract for all work except the lateral system has been entered into, signed, sealed, and delivered. Negotiations are well under way and tentative agreements have been reached with respect to the distribution system repayment contracts.

REASON FOR INCREASE IN ESTIMATE

Mr. KIRWAN. The estimate for this project has been increased because of unfavorable geological conditions in Tecolote tunnel. Why wasn't this discovered before excavations started?

Mr. MARKWELL. It is not always possible, Mr. Chairman, to detect all the various faults in geological formations nor to ascertain the amount of water which may be encountered in tunnel work. We had, we think, excellent exploratory drilling but more water and other difficulties were encountered than we had anticipated.

REASON FOR NOT COMPLETING IN 1953

Mr. KIRWAN. Why can't this project be finished up in 1953?

Mr. MARKWELL. All of the main features of the project except the distribution systems will be completed in 1953. That means that we will complete the Cachuma Dam, the Tecolote tunnel, the Goleta conduit, and Carpinteria conduit. We will begin construction on the distribution systems as soon as satisfactory contracts have been completed for the repayment of the cost of the distribution systems, which we hope will be early in fiscal year 1953.

Mr. JENSEN. Have the water users in the Coachella Valley agreed to the additional amount which this project will cost and also the city of Santa Barbara?

Mr. LINEWEAVER. You mean the Cachuma project?

Mr. MARKWELL. Yes; the amount will be covered by repayment contracts.

Mr. JENSEN. They have agreed to meet the additional cost, is that right?

Mr. MARKWELL. Yes.

Mr. EATON. Repayment contracts which were executed for the water supply works in 1949, sir, are adequate as originally executed, to cover the cost.

Mr. JENSEN. But additional costs because of enlarging that work——

Mr. EATON. It has not been necessary to secure any additional repayment contracts.

Mr. JENSEN. Not up to date; but it will be.

Mr. EATON. No, sir.

Mr. JENSEN. You say it is going to cost a lot more.

Mr. EATON. The contracts which were executed in 1949, for water were water service-type contracts. They return to the United States the construction cost until it is necessary——

Mr. JENSEN. I understand. There was a clause in there which provided that they would pay whatever the cost of the project was when completed; is that right?

Mr. EATON. The actual contract requires them to pay so much per acre-foot of water.

Mr. JENSEN. I know that.

Mr. EATON. It runs without specified limit in the contract until we have recovered all of our costs.

Mr. JENSEN. If it takes more than 50 years to pay it off, it can run 51 or 55 or 60, is that it?

Mr. EATON. Yes. At the close of that 50-year period, if all costs had not been repaid, we would have to execute an additional contract at that time.

Mr. JENSEN. A long way in the future, and you know it is going to cost you more. Why can't you execute a contract now that will take care of it? Wouldn't they be willing to pay the additional amount over a period of 50 years rather than unload it on their grandchildren?

Mr. EATON. The rates at which they pay in the existing contract is $35 an acre-foot for the municipal water at Santa Barbara and $25 for the agricultural water for irrigation purposes in the coastal area. It is a pretty steep rate even for a wealthy area.

Mr. JENSEN. With plenty of water, it is a great productive area, lemons and avocados, as I remember.

Mr. EATON. That is correct. The primary production is in specialty crops.

Mr. JENSEN. You are going to let it go 50 years and then find out how much more they have to pay, is that the deal?

Mr. EATON. Well, we do not propose to execute additional contracts at this time that would not be effective for another 50 years.

Mr. JENSEN. I do not know whether I like that kind of business or not.

INCREASE IN COST

Mr. MARKWELL. I should like to point out that the increase in cost is relatively small—about 6 percent or $2 million over the original estimated cost.

Mr. JENSEN. The original cost, as I remember, was around $35 million.

Mr. MARKWELL. Around $32,300,000, it is now $34,300,000 in round figures.

Mr. JENSEN. Do you think it ought to be $2 million more?

Mr. MARKWELL. That is the present estimated cost.

Mr. JENSEN. Mr. Markwell, let's not be too optimistic about that kind of business because, gentlemen, we know it is going to cost a lot more than that, especially now that you have had trouble in the Tecolote tunnel. I will venture to say that before it is completed it will cost $50 million.

Mr. MARKWELL. I would certainly hope not and I see no reason——

Mr. JENSEN. Every other project has gone up proportionately that much since the estimate for this project was made 3 years ago.

Mr. MARKWELL. We are nearing completion and we can make more accurate estimates.

Mr. JENSEN. You are nearing completion of the tunnel, but you are not nearing completion of the dam and also the related facilities.

Mr. MARKWELL. The main features are all under contract, sir. It is only the distribution system contracts which remain to be let.

Mr. JENSEN. You furnish the cement, you furnish the aggregate, don't you?

Mr. MARKWELL. Not on this job.

Mr. JENSEN. That is an unusual contract, is it not?

Mr. MARKWELL. It is an earth dam and the requirement for cement is relatively low.

Mr. JENSEN. There is some concrete in it, surely.

Mr. MARKWELL. Yes, sir.

POSITION OF WATER USERS ON REPAYMENT

Mr. JENSEN. A lot of concrete. I never saw a big earth dam that size that did not have a lot of concrete and a lot of steel in it even though you call it an earth dam. It appears to me that those people who are going to pay that bill should have a chance to say whether they would like to pay the additional cost now or let it go on and on and on for their grandchildren to pay. My guess is they would like to pay it on schedule. I think they should have the opportunity to say whether they want to pay it now or let it go beyond 50 years.

I would suggest you ask them that question, give them the opportunity at least. I know you have a contract with them and it is binding with Uncle Sam, just as binding as it can be, but contracts can be altered to the advantage of everybody concerned and after all the Treasury needs the money. If we get a few million more in the next few years, we can use it. I think Uncle Sam can use it very handily.

CENTRAL VALLEY PROJECT, CALIFORNIA

Mr. KIRWAN. We will now take up the Central Valley project in California. The allotment for fiscal year 1952 is $33,870,000. The amount estimated for 1953 is $40 million. Pages 291 through 297 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations	$661, 354, 859
Total obligations to June 30, 1951	359, 305, 177
Allotment, fiscal year 1952	33, 870, 000
Prior-year balance available	1, 066, 572
Transfer from project	−5, 498, 808
Total obligations, fiscal year 1952	29, 437, 764
Allotment, fiscal year 1953	40, 000, 000
Total obligations, fiscal year 1953	40, 000, 000
Balance to complete	232, 611, 918

JUSTIFICATION OF ESTIMATE

Authorization.—The Central Valley project was authorized on December 2, 1935, when the President approved a finding of feasibility submitted by the Secretary of the Interior under the provisions of the Reclamation Act of December 5, 1924 (43 Stat. 701). Additional authorizations were made by the Rivers and Harbors Acts of August 26, 1937 (50 Stat. 844, 850), and October 17, 1940, (54 Stat. 1198, 1199). Added American River features were authorized under the act of October 14, 1949 (63 Stat. 852), and the Sacramento Valley canals authorized under the act of September 26, 1950 (54 Stat. 1036).

Location.—The Central Valley consists of the Sacramento and San Joaquin River Valleys in California. The valley is approximately 500 miles long and 100 miles wide extending from Mount Shasta in the north to the Tehachapi Mountains on the south. Its watershed covers the area from the Sierra Nevada Range to the delta outlet through San Francisco Bay. The valley area contains 19 of the 58 counties of the State which comprise 27 percent of the land area. On the basis of the 1950 census the valley contains 20 percent of the State population. Most recent data available credit the Central Valley with 21 percent of the assessed value and 52 percent of the cash farm income.

Description.—The plan of the project is to redistribute the water resources of the Central Valley since the northern portion, drained by the Sacramento River, contains approximately one-third of the land area and has two-thirds of the available water. The southern portion of the valley, drained by the San Joaquin River, has the reverse situation.

The presently authorized Central Valley project is the initial step toward this end. Shasta Dam provides water in storage in the north which under controlled release flows down the Sacramento River. Near the confluence of the Sacramento and San Joaquin Rivers, the water is diverted through the Delta cross channel to the Tracy pumping plant. At the pumping plant the water is raised approximately 200 feet into the Delta-Mendota canal where it flows southerly a distance of 120 miles. This new supply of water from the north permits, by exchange, such water as is available in the San Joaquin River to be diverted into the southern part of the San Joaquin Valley. To achieve this, Friant Dam on the upper San Joaquin impounds the water in Millerton Lake and thence via the Friant-Kern canal the water is delivered 153 miles to the water-deficient areas of the southern extremes of San Joaquin Valley.

The power-production facilities consist of Shasta power plant with five 75,000-kilowatt generators, Keswick power plant with three 25,000-kilowatt generators, and Folsom power plant (under construction) with three 54,000-kilowatt generators, the Nimbus power plant with two 6,750-kilowatt generators, the Mooney power plant with a capacity of 24,000 kilowatts, and the Delta steam plant of 330,000-kilowatt capacity. Approximately one-fifth of the power output is required for operation of the Bureau pumping plants, the major part of which is required for the Tracy pumping plant. The other four-fifths of the power output is available for other uses with preference to public agencies.

Repayment.—As of the commencement of calendar year 1952, 21 long-term water service and repayment contracts for the Central Valley project water has been executed with 18 districts and new contract negotiations are in various stages of completion with another 18 irrigation districts. Also negotiations are under way for the consummation of a distribution system repayment contract for one district with which a water service contract has been executed, and one contract is in process of negotiation for industrial water service. Three amendatory contracts to increase distribution system repayment coverage and one water service contract not included in the above counts are awaiting election and execution.

Effective August 27, 1951, a wheeling contract between the Bureau and a private utility company (P. G. & E.) covering electrical power transmission went into effect. On that date the Bureau commenced service to the first preference customer and to Federal installations by the conveyance of Bureau power over the transmission lines of the private utility company.

Power revenues will eventually pay approximately 45 percent of the project cost and revenues from the sale of irrigation, municipal, and industrial water will pay approximately 42 percent; the remaining 13 percent of project cost is nonreimbursable.

Status.—Construction was initiated under the Emergency Relief Appropriation Act of 1935 (40 Stat. 115). As of June 30, 1952, the project will be approximately 60 percent complete. While fiscal year 1952 witnessed a valley-wide observance (August 1951) as the result of placing in operation all the initial features of the project, a significant construction program is currently under way. The largest single item is distribution system construction for various irrigation districts. The second major item is the Folsom power facilities, programed at a rate to keep pace with the construction of Folsom Dam by the Corps of Engineers. Other items under construction are wasteways and turn-outs along the Delta-Mendota and the Friant-Kern canals, completion of the Tracy pumping plant and initial installation in the Tracy switchyard, further completion of the west side line, and continuation of construction on the Folsom-Elverta 230-kilovolt line, for which a contract was awarded in December 1951 and orders for the contractor to proceed issued in January 1952.

Work proposed, fiscal year 1953.—Fiscal year 1953 will be a major year in the construction of the distribution systems, with work continuing on the Friant-Kern systems and construction starting on the Contra Costa, Delta-Mendota, and Madera systems. It will also be a peak year in the construction of the Folsom power and transmission facilities at a rate to keep pace with the Corps of Engineers in the construction of Folsom Dam. Work will continue on the construction of wasteways and turn-outs on the Delta-Mendota and Friant-Kern canals. Construction will be initiated on the CVP–BPA interconnection. Ground-water studies, water-right and cross-channel studies, studies in connection with authorized transmission facilities, and investigations of the Sacramento canal unit will continue.

Justification.—Because of the unprecendented increase in California's population, an increase of 53 percent in 10 years together with the increased demands for agricultural, livestock, and power production to meet national-defense requirements, the demands for water and power are far ahead of the development of a firm supply of these two resources. The program for fiscal year 1953 is directed toward the completion of such facilities and features as will help to alleviate this demand. Construction of the distribution systems and the transmission facilities should be continued at an economical rate to make available as soon as possible full and efficient utilization of completed works which represent a substantial investment on the part of the Government.

The transmission line which is to be used for interconnection between the Central Valley project power facilities and the Bonneville Power Administration facilities, is a portion of the transmission system of the Central Valley project. The construction of this 119-mile transmission line will provide important relief to the serious power shortage that exists and will continue to exist in the Pacific Northwest.

The total estimated cost of the Central Valley project has been increased from $625,288,900 to $668,282,419 (anticipated total obligations $661,354,859). This increase is due to increased cost of materials and labor, and availability of more reliable data for estimating purposes, and the addition of Mooney Island power plant and related intake and discharge structures, additional work in connection with the Folsom power development as a result of a complete understanding as to the division of responsibility between the Bureau and the Corps of Engineers,

and the addition of transmission facilities proposed for future construction. The Bureau of Reclamation, under a cooperative agreement with the State of California, is investigating the Central Valley water-right problem. Under the agreement the Bureau reimburses the State at the rate of $100,000 a year for 3 years for the State's personnel and other expenses in connection with the water-right investigation.

Schedule of construction program, fiscal years 1952 and 1953, Central Valley project, California

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Shasta Dam and Reservoir	$116,383,000	$113,569,800	$823,183	$748,562	$1,241,455
Keswick Dam	11,789,000	11,166,845	136,027	265,347	220,781
Friant Dam and Reservoir	21,718,000	21,491,529	87,500	22,000	116,971
Folsom Dam and Reservoir [1]					
Sly Park Dam and conduits	6,122,500				6,122,500
Water rights	7,979,000	5,341,769	178,231	887,504	1,571,496
Tracy pumping plant and intake canal	16,500,000	15,927,738	560,262	12,000	
Delta fish protection facilities	4,500,000	303,308	238,236	125,456	3,833,000
Contra Costa canal system, 350 cubic feet per second	6,675,000	6,605,060	25,940		44,000
Madera canal, 1,000 cubic feet per second	2,894,000	2,704,101	50,800	92,500	46,599
Friant Kern canal, 4,500 cubic feet per second	59,710,000	56,885,675	686,600	239,000	1,898,725
Delta cross channel, 7,600 cubic feet per second	11,839,000	1,678,022	356,978		9,804,000
Delta Mendota canal, 4,600 cubic feet per second	46,000,000	41,435,978	3,840,842	684,048	39,132
Sacramento canals unit, approximately 200,000 acres	58,400,000				58,400,000
Delta steam plant and switchyard	55,969,000	68,095			55,900,905
Shasta power plant and switchyard	23,973,000	23,633,196	103,014	65,269	171,521
Keswick power plant and switchyard	11,499,000	11,263,660	43,551	69,372	122,417
Folsom power facilities	36,821,000	707,630	7,973,223	13,135,172	15,004,975
Tracy switchyard	8,200,000	5,973,485	1,289,715	185,000	751,800
Elverta switchyard	5,200,000	53,169			5,146,831
Shasta-Tracy east side No. 3, 230-kilovolts	6,100,000	5,870,501	143,000		86,499
Shasta-Tracy, west side Nos. 1 and 2, 230 kilovolts	11,000,000	9,068,666	1,817,413	113,921	
Folsom transmission facilities, 230 kilovolts	2,635,000		500,000	956,000	1,179,000
CVP-BPA interconnection, 230 kilovolts	5,900,000			2,000,000	3,900,000
Keswick SDAPUD and substation, 115 kilovolts, 13.8 kilovolts	222,000	32,449			189,551
Tracy-CC.-Clayton-Ygnacio and substation, 69 kilovolts	1,124,000	734,693	54,076	60,000	275,231
Transmission lines additions	35,685,800				35,685,800
Central Valley radio network	385,000	170,456	145,241	55,000	14,303
General property	3,091,119	1,001,415	1,212,860	529,156	347,688
Total cost (CVP less distribution systems)	578,314,419	335,687,240	20,266,692	20,245,307	202,115,180
Contra Costa distribution systems	6,106,000	273,162	88,500	849,500	4,894,838
Delta Mendota distribution systems	3,685,000		85,800	265,000	3,334,200
Friant Kern distribution systems	71,857,000	6,892,326	13,778,707	15,338,300	35,847,667
Madera distribution systems	8,320,000	131,755	535,000	2,094,000	5,559,245
Total cost, distribution systems	89,968,000	7,297,243	14,488,007	18,546,800	49,635,950
Total cost, CVP	668,282,419	342,984,483	34,754,699	38,792,107	251,751,130
Construction facilities		3,267,301	511,448	−393,189	−3,385,560
Stores		2,024,593	−420,000	−400,000	−1,204,593
Project investigations		3,502,635	1,468,781	443,194	−5,414,610
O & M during construction	3,151,135	2,161,097	990,038		
Transfers, credits, and other expenditures	−10,078,695	−3,748,705	−453,990		−5,876,000
Total expenditures	661,354,859	350,191,404	36,850,976	38,442,112	235,870,367
Unliquidated obligations		9,113,773	−7,413,212	1,557,888	−3,258,449
Total obligations	661,354,859	359,305,177	29,437,764	40,000,000	232,611,918
Method of financing:					
Allotment, fiscal year 1952			33,870,000		
Prior-year balance available			1,066,572		
Transfer from project			−5,498,808		
Allotments required				40,000,000	232,612,000

[1] Being constructed by Corps of Engineers.

Mr. KIRWAN. You may explain this estimate.

GENERAL STATEMENT

Mr. MARKWELL. The presently authorized Central Valley project is the initial step in the redistribution of the water resources of the Central Valley of California drained by the Sacramento and San Joaquin Rivers. All of the initial features, including the principal storage and water conveyance works are in operation. Construction of the distribution systems and transmission facilities is in progress and should be continued at an economical rate to realize the benefits of the huge investment in completed works. The largest single item presently active is distribution system construction for various irrigation districts. The second major item is the Folsom power facilities. Other items under construction are wasteways and turn-outs along the Delta-Mendota and Friant-Kern canals, completion of the Tracy pumping plant and initial installations in the Tracy Switchyard, work toward completion of the west side transmission line and continue construction work on the Folsom-Elverta 230-kilovolt line for which a contract has been awarded and orders to begin construction issued.

IRRIGATION FACILITIES

With regard to the irrigation facilities, fiscal year 1953 will be a very important year in the construction of the irrigation distribution systems, with work continuing on the Friant-Kern systems and construction being started on the Contra Costa, Delta-Mendota, and Madera distribution systems. Work will also continue on the construction of wasteways and turn-outs on the Delta-Mendota and Friant-Kern canals. Active studies and investigations to be continued in fiscal year 1953 include ground-water studies, water-right and cross-channel studies, and investigation of the Sacramento Canal unit.

A separate table is being presented to show the status of water service and repayment contracts with the many water-user districts. A separate statement which deals with the costs of the distribution systems is also available.

POWER FACILITIES

Power generating facilities of the Central Valley project in operation at the present time consist of Shasta and Keswick power plants, with a total installed capacity of 450,000 kilowatts. Two transmission lines are now in operation, the first a 69,000-volt line which serves the project's five Contra Costa Canal pumping plants, and the second a 230,000-volt line which connects the project's Tracy pumping plant to Shasta and Keswick power plants. Two additional 230,000-volt lines from Shasta to Tracy are practically complete and will be in operation by early spring.

During fiscal year 1953, it is planned to continue work on the Folsom and Nimbus power plants, on a schedule tied in closely with the Army engineer's program for construction of Folsom Dam. Work will continue on construction of the 230-kilovolt Folsom transmission facilities and on the Tracy switchyard. Construction of a substation to serve the Army's Camp Stoneman from the existing Tracy-Contra Costa-Clayton-Ignasio transmission line which runs through the camp, is planned.

BONNEVILLE INTERCONNECTION

It is planned to initiate construction of the Bonneville interconnection in fiscal year 1953, if funds are allocated. This interconnection will allow waste energy from the Pacific Northwest to be used for steam replacement in California. It will also provide the Northwest with a new source of energy from California steam plants. Both areas will gain, and neither will lose, for neither will export energy which could be used in its own area. A full factual statement in support of this justification was made in the hearings on the fiscal year 1952 bill to which reference is made.

In addition the usefulness of this line has been studied by engineers of the Federal Power Commission, the Bonneville Power Administration, and the Bureau of Reclamation. All concur that great benefits can be achieved by construction of such an interconnection. In addition, the Defense Electric Power Administration has recommended that such a line be build in the interest of national defense.

Now Mr. Chairman, I would like to summarize by stating that the backbone, the initial features of the original Central Valley project are now in operation. 1953 will be a year of very intense activity in the construction of the irrigation distribution systems. The estimate on the distribution system in 1953 will be $18½ million out of the total request for $40 million.

The Folsom Dam power facilities will require a little over $14 million. Other items included in the $40 million estimate are the CVP-BPA intertie and additional miscellaneous work on Shasta and Keswick Reservoirs and the completion of the Delta-Mendota canal. There are other minor items included. I will not take the time of the committee to mention them at this time.

WEDNESDAY, JANUARY 23, 1952.

Mr. KIRWAN. Would it be possible, in view of cut-backs in some projects, to accomplish more on the distribution systems and transmission facilities in this one during 1953?

Mr. MARKWELL. I do not believe it would, sir. We are actually proceeding very rapidly with the distribution systems now.

PRINCIPAL FEATURES

Mr. KIRWAN. Since this is one of four projects for which the largest increases are requested in 1953, will you please outline its principal features on a large-scale map for the committee?

Mr. MARKWELL. Mr. Chairman, as the committee is aware, the rainfall and water supply in the Central Valley of California is maldistributed.

In the northern part of the valley there is about one-third of the irrigable area and about two-thirds of the water. That is in the Sacramento Valley. In the San Joaquin Valley and further south, there is about two-thirds of the land and about one-third of the water. That means that the lower half of the valley is very short on a water supply.

The Central Valley project is designed to transfer water a total of some 500 miles, from the Shasta Dam at the upper reaches of the Sacramento Valley, as far south as Bakersfield.

To accomplish this purpose the Shasta Dam, which impounds about 3½ million acre-feet of water, has been constructed. There is a power plant, of course, to take advantage of the falling water.

There is the Keswick Dam and power plant to reregulate the water. The water then flows down the Sacramento River. It is taken across the Delta cross channel to the big pumping plant at Tracy.

It is there pumped up some 200 feet in the Delta-Mendota channel, where it flows by gravity to the Mendota pool. At that point it is exchanged for water which originates in the upper San Joaquin River Basin which now flows into Millerton Lake behind Friant Dam. Most of this water is then diverted through the Friant-Kern canal southwardly as far as Bakersfield, and to the north through the Madera canal to serve the Madera irrigation district.

About one-third of the power from Shasta and Keswick is required for project operation and the balance is sold to preference and other customers to aid in the repayment of the costs of the project. This is in accord with the laws enacted by the Congress. Backbone transmission lines have been constructed from Shasta and Keswick down to the Tracy switchyards where it is available for use at the great Tracy pumping plant which is near a major load center in the San Francisco Bay area. Recently the Congress has added to the original authorized Central Valley project the American River developments wherein the Corps of Engineers is constructing Folsom Dam and the Bureau of Reclamation is constructing the power facilities in connection with Folsom Dam.

That work is now under construction. The power from Folsom Dam will be interconnected with the existing backbone transmission system at Elverta switchyard. One authorized feature of the Folsom development has not been started, the Sly Park irrigation area.

That, sir, is a very, very brief summary of the purpose of the project.

TRANSMISSION LINES

Mr. KIRWAN. In this system, that is, the Shasta Dam and the Central Valley project, are there any transmission lines?

Mr. MARKWELL. Around Shasta, sir?

Mr. KIRWAN. Are there any in the project? Are they asking for anything like substations, interties or anything at all?

Mr. MARKWELL. We are asking for funds to begin the intertie with the Bonneville Power Administration. That line runs from Shasta north to connect just across the Oregon line with the Bonneville Power Administration system.

This year the west side transmission lines will be completed. Work is under contract this year on the 20-mile transmission line from Folsom Dam to interconnect with the existing east side transmission line.

Mr. KIRWAN. That was put in last year?

Mr. MARKWELL. Yes; that was appropriated for last year.

Mr. KIRWAN. Are you making any request for a substation, or anything?

Mr. MARKWELL. There is one new substation to serve Camp Stoneman in the Delta area.

Mr. KIRWAN. That is all you are asking for in connection with transmission facilities?

Mr. McPHAIL. Yes; in the main. There may be some minor additions to substations or switching.

AGREEMENT WITH P. G. & E.

Mr. KIRWAN. I believe you have reached an agreement with the P. G. & E.?

Mr. MARKWELL. I should like for Mr. McPhail to answer that.

Mr. McPHAIL. The company has used the wheeling agreement to bring power to Federal establishments.

Mr. KIRWAN. How is the feeling between the Bureau and the company?

Mr. McPHAIL. I think it is quite friendly.

CONSTRUCTION ON SCHEDULE

Mr. KIRWAN. Are the Folsom power facilities moving forward on schedule?

Mr. McPHAIL. Yes, sir.

Mr. KIRWAN. The irrigation is going forward on schedule, is it?

Mr. MARKWELL. Yes, sir. There are some necessary delays before we can begin construction on some of the systems going ahead.

Mr. KIRWAN. The Tracy pumping plant went into operation last year?

Mr. MARKWELL. Yes, sir.

Mr. KIRWAN. How after 6 or 7 months of operation do they feel about that?

Mr. MARKWELL. I think, sir, it is my own opinion, since they have seen the water in the canals they are more enthusiastic then ever.

Mr. KIRWAN. Any questions, Mr. Jensen?

REQUEST FOR TRACY SWITCHYARD

Mr. JENSEN. I believe you are asking for some money for the Tracy switchyard, are you not?

Mr. McPHAIL. Yes, sir; we are asking for some money in fiscal year 1953 to finish up the work at Tracy switchyard.

Mr. JENSEN. Does that item include switches and installations connected with lines that have not been authorized, or if authorized have been made unnecessary by wheeling contracts?

Mr. McPHAIL. No, sir. I understand these are the facilities required to connect into the lines we have under construction by virtue of the authorizations of Congress.

PROPOSED USE OF FUNDS REQUESTED

Mr. JENSEN. Is any part of the amount requested for this installation to be used for any kilovolt line that was denied last year?

Mr. McPHAIL. Not directly for that purpose. In the event other lines are built some of the facilities might be used.

They are not being put in for that purpose. We propose only putting those in that are necessary to take care of lines now being constructed.

Mr. JENSEN. Is any part intended for connection with the Delta steam plant for which appropriations have for several times been denied?

Mr. McPHAIL. No, sir; not that I know of.

Mr. JENSEN. Is any part of this item to be applied for switches for the 115-kilovolt lines for Elverta or the kilovolt lines to Patterson or the kilovolt lines to the naval supply base at Lathrop for which appropriations heretofore have been denied?

Mr. McPHAIL. No, sir.

ADDITIONAL REQUEST FOR TRACY WEST SIDE LINE

Mr. JENSEN. You have an item in here for the Shasta-Tracy west side line of $113,921. Last year $200,000 was appropriated for these lines. I thought you told the committee that that amount would be enough to complete the lines.

Mr. McPHAIL. That was our belief at that time. This is only a very small amount for clean-up. I think it is 1 percent or less of the cost of the entire lines.

Mr. JENSEN. You think this amount will complete it?

Mr. McPHAIL. Yes, sir. Those lines will be completed and in operation very quickly after the beginning of the fiscal year.

CONTRACTS WITH P. G. & E.

Mr. JENSEN. You have two contracts with P. G. & E.?

Mr. McPHAIL. Yes. We have one contract to cover wheeling by P. G. and E., and another to cover the sale of power to P. G. and E. and certain items of standby. There are two contracts.

Mr. LINEWEAVER. That second contract was entered into after the Congress adjourned last year or just about the time they were adjourned, the second one that he is referring to.

FUTURE NEED FOR ADDITIONAL LINES

Mr. JENSEN. Apparently these contracts are very satisfactory to both sides. Since you have these two contracts, do you anticipate there will be need for more transmission lines in the Central Valley?

Mr. McPHAIL. I cannot say at this time whether there will or will not, Mr. Jensen; not immediately, as far as I can see.

Mr. JENSEN. Do you have more lines in prospect?

Mr. McPHAIL. We have none definitely planned. I think if there are lines that come up in the future it will be on the basis of comparing costs in connection with the wheeling charges under the contract versus the cost to the Government with its own facilities.

FOLSOM TRANSMISSION FACILITIES

Mr. JENSEN. I see you are asking for $1,300,000 more for the Folsom transmission facilities.

Mr. McPHAIL. That is right. That will be used to finish the short connection to tie into our system near Sacramento. That 230,000-volt line was specified by the Congress in the appropriation act.

Mr. JENSEN. I thought you told us last year it would cost about a million more to complete.

Mr. McPHAIL. I am sorry. I do not recall the figures we gave you last year. We will be glad to put a comparison in the record.

Mr. JENSEN. Will this $1,300,000 complete the line?

Mr. McPHAIL. No, sir; $1,179,000 will be required to complete after fiscal 1953.

Mr. JENSEN. So it is going to cost how much to complete?

Mr. McPHAIL. The total is $2,635,000.

Mr. LINEWEAVER. I will put a full statement in the record as to what is involved in those costs.

Mr. JENSEN. Do not clutter the record up too much, but I would like it explained.

Mr. LINEWEAVER. It will be brief as to what makes up this $2,635,000.

(The statement referred to is as follows:)

FOLSOM TRANSMISSION FACILITIES—CENTRAL VALLEY PROJECT STATEMENT ON DIFFERENCE BETWEEN FISCAL YEAR 1952 AND FISCAL YEAR 1953 BUDGET ESTIMATES

In the fiscal year 1952 justification for appropriations, the estimated total cost of Folsom transmission facilities was $1,949,000. In the fiscal year 1953 justification this figure was increased to $2,635,000.

The estimate of $1,949,000 included only the cost of the two 115-kilovolt lines then scheduled. By comparison, the estimated cost of the now scheduled, single 230-kilovolt line alone is $1,105,000, which represents a reduction in line-only cost of $844,000. The increase in total feature cost is due entirely to the addition of $1,530,000 for terminal facilities to connect the Folsom line into the Shasta-Tracy 230-kilovolt East Side line.

It should be noted that to reflect the deletion of terminal facilities for the former Folsom lines, the total estimated cost of the Elverta switchyard has been reduced from $6,500,000 to $5,200,000. No facilities are provided for customer service from the 230-kilovolt Folsom line.

Mr. JENSEN. You have an item of $60,000 in here for the Tracy-Contra Costa-Clayton line.

FACILITIES FOR CAMP STONEMAN

Mr. McPHAIL. That is to cover a small transformer installation at Camp Stoneman. Our transmission line runs directly through the camp. This is to provide a step-down substation to give direct service to the camp.

It results in very much less cost than under the wheeling arrangement, because this is the only facility required in order to get direct service.

Mr. JENSEN. We denied an item of around $200,000 last year for an item in the Contra Costa canal for some transmission facilities, did we not?

Mr. McPHAIL. Yes, sir. There was one asked for last year to Port Chicago involving, I think, 2 or 3 miles of line plus a substation that was denied, and one for the West Side irrigation district and Camp Stoneman.

The only one we have in this year is Camp Stoneman where, as I say, our line runs directly through the camp and this transformer is all that is required to provide direct service.

Mr. JENSEN. Cannot P. G. and E. build that with their own money? Will they not build that, or is this something that is just a continuation of what you have already got under construction?

Mr. McPHAIL. No, this would be a new facility. By putting it in ourselves for this expenditure of $60,000 we estimate a saving of something like $7,000 a year as compared to the cost under the wheeling contract.

Therefore, it appears to us to be good common-sense economy for the Government to provide its own direct service to its own camp at that point and make that saving.

Mr. JENSEN. The P. G. and E. would build it if they are permitted to do so, would they not?

Mr. MCPHAIL. I expect they would. As I say, we can recover more than the total cost of this in a very few years. It seems, therefore, it is best certainly for the Government to make that saving by the relatively small expenditure.

Mr. JENSEN. You contend everything you have in this request is absolutely necessary?

Mr. MCPHAIL. Yes, sir; I think so.

PROGRESS OF IRRIGATION FACILITIES

Mr. JENSEN. How many acres of land is now being irrigated by the Central Valley project?

Mr. EATON. In the fiscal year 1952, five-hundred-and-eighteen-thousand-eight-hundred-and-odd were served through the project; in fiscal 1953 we estimate it will be 546,300 or 546,400 acres.

Mr. JENSEN. How many more miles of the Friant-Kern canal is unfinished to date?

Mr. EATON. It is completed, sir; the canal itself, with water throughout the entire length of the canal.

Mr. JENSEN. It is now completed? You have some laterals that are not in?

Mr. MARKWELL. There is a possibility in 1956 or later there would be an extension of the Friant-Kern canal, but it is completed insofar as the presently contemplated length is concerned.

To answer your question, we are hard at work on the distribution systems at the present time. The bulk of the money in the request is for that purpose.

Mr. JENSEN. How much land will be irrigated when all of the present authorized irrigation system is completed, that for which we have already appropriated money?

Mr. EATON. The ultimate finally would be to supply water to 488,000 acres for a full water supply and 758,000 acres for supplemental water supply.

Mr. JENSEN. Well over a million acres?

Mr. EATON. Yes, sir.

Mr. JENSEN. Is this an addition which is contemplated for irrigation? Has Congress authorized that?

Mr. MARKWELL. Yes, sir. Those are the distribution systems which are an authorized part of the Central Valley project.

Mr. JENSEN. That is a part of the Central Valley project itself.

Mr. MARKWELL. Yes, sir.

Mr. JENSEN. I think that is all, Mr. Chairman.

NEW FACILITIES REQUESTED

Mr. KIRWAN. We understand that there is only one substation that you have come in here for and the intertie; is that correct?

Mr. MARKWELL. Yes, sir. The substation is on our existing transmission line which runs right through the Government camp on Government property.

Mr. KIRWAN. Mr. NORRELL.

Mr. NORRELL. There has been no work done on the intertie with the Bonneville system this year?

Mr. BEASLEY. No, sir. The work was suspended almost immediately after the hearings last year.

Mr. NORRELL. You still want the line?

Mr. MARKWELL. Yes, sir.

Mr. KIRWAN. Mr. Jackson.

Mr. JACKSON. I had an opportunity to spend 2 or 3 days in Central Valley. I was quite impressed by the progress that has been in connection with the irrigation projects in that area.

ADDITIONAL POWER FACILITIES AT FRIANT DAM

When I was in Fresno I went over to the Friant Dam. It occurred to me that further consideration ought to be given to the possibility of installing power facilities at that dam.

I wonder if you have any comment on that?

Mr. MCPHAIL. Friant Dam was built as a flood control and irrigation feature of the Central Valley project, with no provision for power-generating facilities. The major portion of stored water is released for irrigation use into the Friant-Kern and Madera canals at such high elevations that there is insufficient head for the economical production of power.

A relatively small amount of water is released, under full available head, into the river below the dam to provide minimum flows for fish preservation and for riparian users. The volume of these releases is so small, however, and their schedule so irregular, that the installation of power facilities to make use of this falling water has not been economically justifiable.

It is of course possible that future changes, either in economic conditions or in required schedules of project operation, might alter the picture and might justify installation of power facilities at Friant Dam.

Mr. JACKSON. Could you have your engineers out there take another look at the economic feasibility of installing power facilities?

Mr. MCPHAIL. We would be glad to do that.

Mr. JACKSON. I gathered there is a possibility that they could utilize either the Madera canal or the Friant-Kern canal as a power site.

CONTROVERSY OVER IRRIGATION CONTRACTS

I understand there has been quite a bit of controversy about these irrigation contracts known as the "9–E contracts." I had a very nice talk with Mr. Dickinson and I believe he is assistant regional director. He appeared to me to be a very able administrator.

He informs me that in the vast majority of cases, at least where elections have been held, the people have voted favorably on these contracts. Do you have any comment on that?

Mr. LINEWEAVER. Yes, sir; you are correct that the water users have approved practically every contract submitted to them.

Mr. JACKSON. The reason I raised the question is that I understand that for some time it was a point of controversy.

If I have my understanding right, when it came down to an actual vote by the people in the irrigation districts, they voted by substantial majorities to approve these irrigation contracts.

Mr. LINEWEAVER. Yes, sir; they have done so. I will submit a statement for the record showing what contracts have been approved, and also a statement with regard to the controversy that you mention which revolves around the increased costs.

Mr. JACKSON. Could you show the election results?

Mr. LINEWEAVER. We will show that.

Mr. JACKSON. I mean, the votes in the district, and so on?

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. I think that will be helpful when we get on the floor.

Mr. LINEWEAVER. I will submit the statement and fill in the results of the election.

(The statement referred to is as follows:)

Water service and repayment contract status, Central Valley project, and election results, Jan. 1, 1952 [1]

I. *Executed contracts—*

District	Type of contract	Repayment amount	District election		Execution date	Court validation
			Yes	No		
1. Buckeye County water district	W		59	1	Dec. 18, 1951	
2. Chowchilla water district	W		(2)	(2)	July 5, 1950	
3. Contra Costa County water district	W/D	$888,000	4,770	292	Sept. 18, 1951	
4. Delano-Earlimart irrigation district	W/D	9,537,000	378	5	Aug. 11, 1951	
5. Exeter irrigation district	W/D	2,320,744	967	92	Nov. 8, 1950	
6. Ivanhoe irrigation district	W/D	1,589,807	218	33	Sept. 23, 1949	
7. Lindmore irrigation district	W/D	4,529,760	422	28	Feb. 28, 1949	May 19, 1949
8. Lindsay-Strathmore irrigation district.	W		188	1	Aug. 5, 1948	Mar. 1, 1949
9. Lindsay-Strathmore irrigation district.	D	1,443,000	183	18	Sept. 12, 1950	
10. Lower Tule River irrigation district	W		306	44	May 1, 1951	
11. Madera irrigation district	W/D	8,320,000	1,979	755	May 14, 1951	
12. Orange Cove irrigation district	W		438	122	May 20, 1949	Dec. 7, 1949
13. Shasta Dam area public utility district.	W		(2)	(2)	Aug. 12, 1948	
14. Saucelito irrigation district	W/D	2,644,500	66	0	Feb. 13, 1951	
15. Southern San Joaquin municipal utility district.	W		(2)	(2)	Oct. 18, 1945	Apr. 21, 1950
16. Southern San Joaquin municipal utility district.	W		(2)	(2)	May 13, 1948	Do.
17. Southern San Joaquin municipal utility district.	D	9,959,484	(2)	(2)	May 14, 1948	Do.
18. Stone Corral irrigation district	W/D	777,000	38	0	Dec. 13, 1950	Sept. 17, 1951
19. Summit City public utility district	W		(2)	(2)	Oct. 22, 1948	
20. Terra Bella irrigation district	W		102	2	Sept. 12, 1950	
21. Tulare irrigation district	W		285	9	Oct. 18, 1950	

[1] Clearance of most contracts by the California Districts Securities Commission is required prior to local elections except in cases of certain special districts.

[2] No election.

II. *Approval as to form—Awaiting election and execution—*

1. Ivanhoe irrigation district:
   - (*a*) Type of contract: D (amendatory).
   - (*b*) Approved as to form, November 2, 1951.
   - (*c*) Amending contract of September 23, 1949, to increase distribution system repayment coverage from $1,589,807 to $2,276,000.
2. Lindmore irrigation district:
   - (*a*) Type of contract: D (amendatory).
   - (*b*) Approved as to form, December 10, 1951.
   - (*c*) Amending contract of February 28, 1949, to increase distribution system repayment coverage from $4,529,760 to $5,000,000.

3. Lindsay-Strathmore irrigation district:
   (*a*) Type of contract: D (amendatory).
   (*b*) Approved as to form, October 30, 1951.
   (*c*) Amending contract of September 12, 1950, to increase distribution system repayment coverage from $1,443,000 to $2,740,000.
4. Porterville irrigation district:
   (*a*) Type of contract: Water service.
   (*b*) Approved as to form, October 30, 1950; November 16, 1951 (revision).
   (*c*) District election held January 3, 1952; 186 votes for to 33 against contract.

III. *Existing contracts where increased costs may require supplemental contract—*

1. Contra Costa County water district.
2. Delano-Earlimart irrigation district.
3. Exeter irrigation district.
4. Madera irrigation district.
5. Saucelito irrigation district.
6. Stone Corral irrigation district.

IV. *New contract negotiations are under way with the following districts—*

	Type of contract
1. Alpaugh irrigation district	W.
2. Arvin-Edison water storage district	W.
3. Borland water district	W.
4. City of Vallejo (pumping from Delta)	W.
5. Del Puerto water district	W.
6. El Dorado irrigation district	W.
7. Grass Lands Water Association	W.
8. Hospital water district	W/D.
9. James irrigation district	W.
10. Kern Canyon water district	W/D.
11. Orestimba water district	W.
12. Pacific Gas & Electric Co	W (9c).
13. Panoche water district	W.
14. Plainview water district	W.
15. Salado water district	W.
16. San Luis water district	W.
17. Shafter-Wasco irrigation district	W/D.
18. Tranquillity irrigation district	W.
19. Tulare irrigation district	D.
20. West Stanislaus irrigation district	W.

ADMINISTRATION OF PINE FLAT DAM

Mr. JACKSON. With reference to the dam on Kings River, what is the situation with reference to the position of the Bureau of Reclamation as to the administration of the dam when it is completed?

Mr. LINEWEAVER. There are now discussions looking to negotiations of contracts for the repayment of the irrigation allocation of Pine Flat Dam which is being constructed by the Corps of Engineers under authorization in the Flood Control Act of 1944. The Secretary of the Interior is charged with the responsibility of administering the irrigation features and water releases. The original estimate of the irrigation allocation was something like $14,000,000. Because of the increased costs of the dam there have been discussions that that allocation for repayable irrigation costs may be increased something like $20 or $22 million.

Mr. JACKSON. The way it stands now, though, it is all being allocated to flood control. The dam is costing about $60 million, is it not?

Mr. LINEWEAVER. No, sir; there is $14 million of the original cost allocated to irrigation to be repaid by the water users.

Mr. JACKSON. How can you enforce that?

Mr. LINEWEAVER. That is the problem. The law requires that be done. We assume that the dam will be so operated by the Corps of Engineers as to secure the enforcement of the irrigation releases.

Mr. JACKSON. All you have is unilateral compulsion, which means nothing. You can approach them and say, "You must do it," but what if they say, "What are you going to do about it?"

Mr. LINEWEAVER. As I understand, Mr. Jackson, so far they have not taken that position.

Mr. JACKSON. Have they taken a position?

Mr. LINEWEAVER. They have not precisely said that they would not enter into a contract for the repayment of the irrigation allocation.

In fact, they have opened negotiations with our regional office in Sacramento. As we understand it, the discussions are now in progress.

Mr. JACKSON. It seems to me the Bureau is in a difficult spot. Your hands are pretty well tied. I do not see how you can get an agreement with them unless they want to volunteer their contribution of $15 million.

Mr. LINEWEAVER. We feel the matter of the operation of the dam would control that. As to whether they would get the water when they needed it, that is a problem in which they are interested and is a lever of importance.

The regulation of the Kings River for the irrigation of some several hundred thousand acres of very valuable land is involved there and unless the water users agree to repay the irrigation allocation, water releases from Pine Flat could be withheld.

Mr. JACKSON. You mean you could withhold the water during the irrigation season?

Mr. LINEWEAVER. That would be through the regulation of the river, as I understand it.

Mr. JACKSON. I am not being critical of the Bureau. It seems to me you are being given a difficult assignment.

Mr. LINEWEAVER. That is not the only one that we have, Mr. Jackson.

BLOCKED INSTALLATION OF POWER FACILITIES AT PINE FLAT DAM

Mr. JACKSON. What about the power features of the dam?

The openings are there for the penstocks but it seems from what little I have been able to find out there is no appropriation for the installation of a powerhouse.

Mr. LINEWEAVER. That is correct.

Mr. JACKSON. That is the craziest thing I have seen in a long, long time. Here is a dam which will produce how much power?

Mr. LINEWEAVER. I do not know. I think it is about 45,000 kilowatts.

Mr. JACKSON. Somebody is trying to stop the installation of power facilities at a time when we have a national power shortage.

Mr. LINEWEAVER. I would like to submit for the record, Mr. Jackson, a statement, and it should be very carefully prepared, on the situation at Pine Flat Dam. The Federal Power Commission has taken jurisdiction and has rendered a decision on the matter.

I would like to have the historical record of that very carefully prepared and inserted in the record.

Mr. JACKSON. I would like to have it.

Mr. LINEWEAVER. Just what the situation is and what the position of the Secretary of the Interior is with respect to the power situation and what he considers to be his responsibility for the development of power at Pine Flat Dam.

(The information requested is as follows:)

STATUS OF PINE FLAT POWER PLANT, KINGS RIVER, CALIF.

A 45,000-kilowatt power plant to be constructed at Pine Flat Dam was included in Interior's plan for the development of the Kings River presented to the Congress in 1940 (H. Doc. No. 631, 76th Cong., 3d sess.). This plan, in effect, was rejected when the construction of Pine Flat Dam was authorized to the Corps of Engineers by the Flood Control Act of 1944. However, the Corps' plan did not include a power plant. In 1948 Interior sent to the Congress a plan for the comprehensive development of the water resources of the Central Valley Basin (H. Doc. No. 367, 80th Cong., 1st sess.), including a power plant at Pine Flat Dam. In this connection the Secretary, with the approval of the President, suggested specific legislation which, among other things, would have authorized the construction of Pine Flat plant. Again in 1950 Interior submitted a plan to the Congress for the development of power on the North Fork of the Kings River which included a Pine Flat power plant (H. Doc. No. 537, 81st Cong., 2d sess.). Following this, in July 1951, the Secretary forwarded a proposed bill to the Speaker of the House and to the President of the Senate to authorize the construction of this facility. No action has been taken on this proposal.

Ever since Pine Flat Dam was authorized for construction in 1944, the Fresno irrigation district, for itself and as trustee for several of the irrigation districts in the Kings River area, also has been interested in developing power at Pine Flat Dam along with other power sites on the upper Kings River. In 1945 it filed an application with the Federal Power Commission for a preliminary permit to investigate these sites. Likewise the Pacific Gas & Electric Co. was interested in the upstream sites and in 1948 applied to the Commission for a license to construct facilities at essentially the same locations, excluding, however, the Pine Flat Dam site. In December 1951, following a long controversy before the Commission in which Interior, Pacific Gas & Electric, and the Fresno irrigation district all participated, licenses were ordered to be issued to the company for construction of power facilities at the upstream sites. At the same time a preliminary permit was ordered to be issued to the Fresno irrigation district for investigation of the Pine Flat site. The question whether the decision of the Federal Power Commission should be appealed to the courts is now under consideration by Interior.

Interior proposes to use any power developed at Pine Flat Dam for irrigation pumping in the Kings River area, particularly along the Friant-Kern canal, a feature of the Central Valley project of the Bureau of Reclamation. Power revenues would be utilized to assist in the financing of reclamation activities in the Central Valley Basin of California as proposed by Interior in its comprehensive plan mentioned above.

STATUS NEGOTIATIONS REPAYMENT CONTRACT, KINGS RIVER WATER USERS, PINE FLAT DAM

For several years, pursuant to its legal responsibilities, Interior has been negotiating with the water users in the Kings River area for the sale of the irrigation benefits available from Pine Flat Dam and Reservoir. In general, all differences have been resolved except for two major problems: (1) The reluctance of the local irrigation interests to accept the 160-acre limitation as a condition to the purchase of the irrigation benefits, and (2) disagreement as to the amount of money to be paid to the Federal Government for these benefits. Based on the original cost estimate for Pine Flat Dam of some $36,000,000, Interior asked for a repayment of $14,250,000, an amount approved in a cost allocation report agreed upon by the Departments of the Army and Interior, as against $10,000,000 offered by the water users. This problem is now complicated by the fact that the current cost estimate for the dam is about $51,000,000 and by the fact that it now seems certain power will be developed on Kings River by reason of the river regulation to be provided by Pine Flat Dam and Reservoir. This development makes it reasonable and proper to allocate additionally to power, flood control,

and irrigation, their proportionate shares of the cost of the dam and reservoir. In the circumstances, Interior has asked the Corps of Engineers whether it is agreeable to a new cost allocation. The problem is still under consideration. It is doubtful that further progress in negotiations can be made until there is a definitive answer to this question.

WATER RIGHTS ON SACRAMENTO AND SAN JOAQUIN RIVERS

Mr. LINEWEAVER. Mr. Chairman, you will recall that when you and I were in California last summer, there was considerable discussion in the public press about water rights for the Central Valley project on the Sacramento and San Joaquin Rivers. The State of California transferred to the Bureau of Reclamation certain filings for water rights for the project but there has been no adjudication of these rights by the courts.

The Bureau, in order to protect the investment of the United States as well as the project irrigation and power water users, has found it necessary to initiate and conduct extensive investigations into the water-right problem in cooperation with the State of California. On July 1, 1950, the Bureau entered into a 3-year agreement with the State through its Department of Public Works for extensive cooperation under which the State will furnish personnel for field work, for analyzing data, providing technical assistance, and other necessary forms of cooperation. The rate of reimbursement to the State is at the rate of $100,000 a year for 3 years. The contract expires June 30, 1953.

The total estimated amount justified for the water rights investigations for fiscal year 1952 was $571,965. For fiscal year 1953 the total amount justified for water-right activities is $349,158.

(The authorization for the contract with the State of California referred to is as follows:)

CENTRAL VALLEY PROJECT LEGISLATIVE AUTHORIZATION FOR CONTRACT WITH THE STATE OF CALIFORNIA UNDER WHICH THE STATE IS SUPPLYING THE BUREAU OF RECLAMATION DATA ON WATER RIGHTS DIVERSIONS AND UTILIZATIONS

RIVERS AND HARBORS ACT OF 1937

[Extract from an act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act August 26, 1937, 50 Stat. 844, 850, Public Law 392, 75th Cong., 1st sess.)]

SEC. 2. That the $12,000,000 recommended for expenditure for a part of the Central Valley project, California, in accordance with the plans set forth in Rivers and Harbors Committee Document Numbered 35, Seventy-third Congress, and adopted and authorized by the provisions of section 1 of the Act of August 30, 1935 (49 Stat. 1028, at 1038), entitled "An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," shall, when appropriated, be available for expenditure in accordance with the said plans by the Secretary of the Interior instead of the Secretary of War: *Provided*, That the transfer of authority from the Secretary of War to the Secretary of the Interior shall not render the expenditure of this fund reimbursable under the reclamation law: *Provided further*, That the entire Central Valley project, California, heretofore authorized and established under the provisions of the Emergency Relief Appropriation Act of 1935 (49 Stat. 115) and the First Deficiency Appropriation Act, fiscal year 1936 (49 Stat. 1622), is hereby reauthorized and declared to be for the purposes of improving navigation, regulating the flow of the San Joaquin River and the Sacramento River, controlling floods, providing for storage and for the delivery of the stored waters thereof, for the reclamation of arid and semiarid lands and lands of Indian reservations, and other beneficial uses, and for the generation and sale of electric energy as a means of financially aiding and assisting such undertakings and in order to permit the

full utilization of the works constructed to accomplish the aforesaid purposes: *Provided further*, That, except as herein otherwise specifically provided, the provisions of the reclamation law, as amended, shall govern the repayment of expenditures and the construction, operation, and maintenance of the dams, canals, power plants, pumping plants, transmission lines, and incidental works deemed necessary to said entire project, and the Secretary of the Interior may enter into repayment contracts, and other necessary contracts, with State agencies, authorities, associations, persons, and corporations, either public or private, including all agencies with which contracts are authorized under the reclamation law, and may acquire by proceedings in eminent domain, or otherwise, all lands, rights-of-way, water rights, and other property necessary for said purposes: *And provided further*, That the said dam and reservoirs shall be used, first, for river regulations, improvement of navigation, and flood control; second, for irrigation and domestic uses; and, third, for power.

KERN RIVER PROJECT, CALIFORNIA

Mr. KIRWAN. We will move on to the Kern River project. The allotment for 1952 is $75,000 and the estimate for 1953 is $15,000.

Please insert in the record at this point pages 300 through 303 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$135,000
Total obligations to June 30, 1951		23,915
Allotment, fiscal year 1952	$75,000	
Prior year balance available	18,585	
Balance available in subsequent year	−26,085	
Total obligations, fiscal year 1952		67,500
Allotment, fiscal year 1953	$15,000	
Prior year balance available	26,085	
Total obligations, fiscal year 1953		41,085
Balance to complete		2,500

JUSTIFICATION OF ESTIMATE

Authorization.—Construction of Isabella Dam by the Corps of Engineers was provided in the Flood Control Act of December 22, 1944 (58 Stat. 887), which stipulates that disposition of water from Isabella Dam for irrigation purposes will be subject to Federal reclamation laws.

Location.—Kern River is the southern-most major stream entering the great Central Valley of California. It flows south from the northeastern portion of Tulare County, Calif., in the Sierra Nevada, and continues southwes tthrough Kern County to the city of Bakersfield.

Description.—The project will be operated for the multiple purposes of irrigation, flood control, and power generation. Isabella Reservoir, with a capacity of 550,000 acre-feet, will store water for irrigation of a water-deficient area, and will provide flood control in the vicinity of Bakersfield. In addition, existing and potential hydroelectric power sites will be improved.

Repayment.—A cost allocation report scheduled to be completed during fiscal year 1952 will constitute the basis for discussion with the Corps of Engineers relative to repayment of reimbursable costs of the project.

Status.—Construction of Isabella Dam was commenced by the Corps of Engineers on March 16, 1948. Completion of the dam is scheduled for fiscal year 1953. Land use, economic, water supply, and power studies are being carried out for purposes of preparation of a cost allocation report. Work pertaining to water rights of lands adjacent to or diverting from the Kern River is being pursued.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for continuation of the repayment studies and repayment contract negotiations.

Justification.—Though the Kern River area is highly developed for irrigation purposes, the present water supply is inadequate. Storage regulations by the

reservoir will increase the amount of irrigation water available from the presently unregulated Kern River, reducing intensity and cost of ground water pumping. Expansion of irrigated acreage may also be possible, such as in the water-deficient Arvin-Edison area. In order to utilize the project upon completion of the construction work, and to insure the return to the United States of reimbursable costs, contracts must be negotiated for repayment of costs allocable to irrigation benefits.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program: Isabella Dam and Reservoir	[1] $135,000	([2])	([2])	([2])	$135,000
Total cost	135,000				135,000
Project investigations		$23,915	$67,500	$41,085	−132,500
Total expenditures	135,000	23,915	67,500	41,085	2,500
Total obligations	135,000	23,915	67,500	41,085	2,500
Method of financing:					
Allotment, fiscal year 1952			75,000		
Prior year balance available			18,585	26,085	
Balance available in subsequent year			−26,085		
Allotments required				15,000	2,500

[1] Represents cost of economic investigations and repayment contract negotiations to be accomplished by the Bureau of Reclamation.
[2] Under construction by Corps of Engineers.

Mr. KIRWAN. You may explain that.

GENERAL STATEMENT

Mr. MARKWELL. I will make a brief statement, and then answer any questions.

The Corps of Engineers is constructing Isabella Dam as provided for in the Flood Control Act of December 22, 1944. That act provides that disposition of water from Isabella Dam for irrigation will be subject to the Federal reclamation laws.

Kern River is the southernmost major stream entering the Central Valley of California. Isabella Reservoir, located thereon, with a capacity of 550,000 acre-feet of water, will store water for irrigation of water-deficient areas and will provide flood control in the vicinity of Bakersfield. In addition, existing and potential hydroelectric power sites will be improved.

In order to utilize the project upon completion of construction work, and to insure the return to the United States of reimbursable costs, contracts must be negotiated for repayment of costs allocable to irrigation benefits. A cost allocation report scheduled to be completed in fiscal year 1952 will provide a basis for discussion with the Corps of Engineers relative to repayment contract negotiations. These funds are necessary because completion of Isabella Dam is scheduled for fiscal year 1953.

BALANCE TO COMPLETE

Mr. KIRWAN. The balance to be completed after 1953 is shown as $2,500. Why cannot this be cleaned up and taken off the books during 1953?

Mr. MARKWELL. The item is principally for negotiations, sir. It is difficult to predict the exact time that agreement will be reached.

We indicated this amount for the next year to show the committee the possibility that agreement may not be reached.

Mr. KIRWAN. Agreement may be reached and you may not have to use this $2,500?

Mr. MARKWELL. That is correct, sir.

Mr. KIRWAN. The money you are requesting this year, $15,000, might be able to clean it up?

Mr. MARKWELL. Yes, sir.

COLORADO-BIG THOMPSON PROJECT, COLORADO

Mr. KIRWAN. We will move on to the Colorado-Big Thompson project in Colorado. The allotment for this project in 1952 is $19 million. The estimate for 1953 is $18 million and a transfer to the project of $1 million is proposed.

Please insert in the record at this point pages 305 through 310 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$160, 331, 442
Total obligations to June 30, 1951		113, 609, 306
Allotment, fiscal year 1952	$19, 000, 000	
Prior year balance available	2, 536, 482	
Total obligations, fiscal year 1952		21, 536, 482
Allotment, fiscal year 1953	$18, 000, 000	
Transfer to project	1, 000, 000	
Total obligations, fiscal year 1953		19, 000, 000
Balance to complete		6, 185, 654

JUSTIFICATION OF ESTIMATE

Authorization.—The Colorado-Big Thompson project was authorized under the Interior Department Appropriation Act of August 9, 1937 (50 Stat. 595), for construction in accordance with Senate Document No. 80, Seventy-fifth Congress. Finding of feasibility was approved by the President, December 21, 1937.

Location.—The project is located in north-central Colorado, extending eastward from the headwaters of the Colorado River in the general vicinity of Grand Lake, Granby, and Kremmling across the Continental Divide to the headwaters of the Big Thompson River near Estes Park and eastward to farm lands in northeastern Colorado.

Description.—The primary purpose of the project is to provide a supplemental water supply for the irrigation of 615,000 acres of irrigated land in northeastern Colorado. Surplus water of the Colorado River will be stored in Granby Reservoir and pumped by the Granby pumping plant into Shadow Mountain Lake. The water will then flow by gravity through Grand Lake and then by way of the Alva B. Adams tunnel, through the Continental Divide to the eastern slope. Continuing by gravity the diverted water will flow through a system of conduits and power plants on the eastern slope to be finally stored in two large reservoirs, Horsetooth and Carter Lake, with a combined active capacity of 248,200 acre-feet. Water from these reservoirs will be released through supply canals into the Poudre River, the Little and Big Thompson Rivers, South Platte River, St. Vrain Creek, and Boulder Creek, from which it will be rediverted by existing irrigation facilities. Green Mountain Reservoir, located on the Blue River, a tributary of the Colorado, stores excess runoff of that stream for later release to the Colorado River to replace that water being withheld by project facilities during those periods when downstream rights would otherwise be infringed upon. Additional releases may be made to the river according to provisions and interpretation of operating requirements set forth in Senate Document 80.

The power plants of the project will be connected by a transmission system, interconnected with power systems of the North Platte, Kendrick, Riverton, Shoshone, and Missouri Basin projects, in addition to other private and publicly owned power systems.

The project is designed to furnish a supplemental water supply for 615,000 acres of land and to have an installed capacity of 177,650 kilowatts.

Repayment.—A contract, dated July 5, 1938, has been executed with the Northern Colorado Water Conservancy District for the repayment of not to exceed $25,000,000. A contract amending the contract of July 5, 1938, was entered into between the United States and the conservancy district on July 14, 1950, providing for an additional payment of $889,000 in 40 equal annual installments, covering revised plan for the construction of the North Poudre gravity canal. On December 15, 1950, an interim contract was entered into with the conservancy district for the rental of water prior to the commencement of the construction-repayment installments. This contract provides that a portion of the revenue be considered as an additional payment to the United States on the project construction cost not covered by the contracts, dated July 5, 1938, and July 14, 1950.

Status.—Construction began in 1938. As of June 30, 1952, the project will be approximately 84 percent complete. At the present time work is under way on construction of Granby Dam and Reservoir, Willow Creek feeder canal system, Granby pumping plant, Estes Park aqueduct and power system, Estes Park-Foothills power system, Carter Lake Dams and Reservoir, Horsetooth feeder canal, Poudre and North Poudre supply canals, Beaver Creek substation, Gore Junction-Muddy Pass transmission line, Estes-Flatiron 115-kilovolt line and power plant taps, Estes-Pole Hill 115-kilovolt transmission line, Flatiron-Leyner-Brighton-Brush transmission line, Flatiron-Fort Collins-Cheyenne tap transmission line, Salida-Gunnison transmission line, dispatch building, and shop and storage buildings. Work is also under way on substations for transmission lines existing and under construction. Work will be started during the fiscal year on the Saint Vrain supply canal. Studies are under way for the extension of the project collection and storage facilities to meet the total water diversion contemplated in Senate Document 80.

Work Proposed, fiscal year 1953.—The program for fiscal year 1953 provides for continuation of work now under way. This program includes delivery of initial water under the Willow Creek feeder canal system, the Estes Park-Foothills power system, Carter Lake Dam and Reservoir, the Horsetooth feeder canal and the North Poudre supply canal. Construction of electrical facilities continues and will include initiation of construction of Leyner Tap, by issuance of equipment specifications. Construction of the Boulder Creek and South Platte supply canals will be initiated.

Justification.—The project when authorized was expected to provide needed supplemental irrigation water and a power supply adequate to meet normal load growth of the area. The demand for supplemental irrigation water has increased materially and a critical power deficiency exists in the market area of the project. The major portion of the project should be completed as scheduled in order to provide full production of power and delivery of irrigation water by May 1953. Failure to complete remaining work as scheduled would result in serious losses in power and irrigation revenues as well as depriving the project area the supplemental irrigation water and power supply needed for normal growth.

The total estimated cost of the project has been increased from $150,165,000 to $160,068,000 (anticipated total obligations $160,331,442). With the exception of the addition of the Boulder Creek and South Platte supply canals this increase is principally due to collection of final design data, receipt of higher bid prices than previously anticipated, and the preparation of new estimates based on these higher unit prices.

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Status.—Construction began in 1938. As of June 30, 1952, the project will be approximately 84 percent complete. At the present time work is under way on construction of Granby Dam and Reservoir, Willow Creek feeder canal system, Granby pumping plant, Estes Park aqueduct and power system, Estes Park-Foothills power system, Carter Lake Dams and Reservoir, Horsetooth feeder canal, Poudre and North Poudre supply canals, Beaver Creek substation, Gore Junction-Muddy Pass transmission line, Estes-Flatiron 115-kilovolt line and power plant taps, Estes-Pole Hill 115-kilovolt transmission line, Flatiron-Leyner-Brighton-Brush transmission line, Flatiron-Fort Collins-Cheyenne tap transmission line, Salida-Gunnison transmission line, dispatch building, and shop and storage buildings. Work is also under way on substations for transmission lines existing and under construction. Work will be started during the fiscal year on the Saint Vrain supply canal. Studies are under way for the extension of the project collection and storage facilities to meet the total water diversion contemplated in Senate Document 80.

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Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Green Mountain Dam and Reservoir	$7,054,000	$7,009,182	$44,818		
Green Mountain power plant and switchyard	1,702,000	1,458,703	96,000	$110,000	$37,297
Granby Dam and Reservoir	12,050,000	11,437,868	612,132		
Colorado River improvements	585,000	558,624	12,376		14,000
Willow Creek feeder canal system	5,041,000	695,727	2,296,000	2,049,273	
Granby pumping plant and canal	9,928,000	9,632,226	295,774		
Shadow Mountain Dam and Lake	1,209,000	1,170,056	38,944		
Alva B. Adams tunnel	12,999,000	12,540,929	458,071		
Estes Park aqueduct and power system	15,081,000	14,880,113	200,887		
Lake Estes and Olympus Dam	2,405,000	2,396,248	8,752		
Estes Park-Foothills power system	32,490,000	9,317,761	12,375,000	10,719,239	78,000
Big Thompson power plant, switchyard and transmission line	1,475,000	11,798			1,463,202
Carter Lake dams and reservoir	3,800,000	1,665,461	1,635,000	499,539	
Saint Vrain supply canal	4,683,000	128,830	612,000	2,624,170	1,318,000
Boulder Creek and South Platte supply canals	1,714,000	6,437	74,000	1,000,000	633,563
Horsetooth feeder canal	8,895,000	6,988,326	940,000	966,674	
Horsetooth dams and reservoir	12,757,000	12,356,191	400,809		
Poudre supply canal	2,110,000	1,810,497	299,503		
North Poudre supply canal system	3,400,000	265,118	1,983,000	1,151,882	
Project substations—multiple-line use	2,938,000	880,725	881,710	808,000	367,565
Green Mountain-Dillon 115-kilovolt transmission line and substation	227,000	175,075			51,925
Green Mountain-Oak Creek 115-kilovolt transmission line and substation	1,183,000	730,938	83,000	70,000	299,062
Kremmling Tap-Gore Junction-Muddy Pass 69-kilovolt transmission line and substations	516,000	112,951	195,000	84,000	124,049
Estes-Granby pumping plant-Green Mountain 69-kilovolt transmission lines and substations	1,683,000	1,585,287	39,000		58,713
Estes-Flatiron and Estes-Marys Lake 115-kilovolt transmission lines	307,000	272,629	18,000	16,371	
Estes-Pole Hill 115-kilovolt transmission line	148,000	7,133	100,000	40,867	
Flatiron-Pole Hill 115-kilovolt transmission line	76,000	59,285		16,715	
Flatiron-Leyner second 115-kilovolt transmission line and Leyner substation	277,000	42			276,958
Leyner switchyard tap	139,000	8,447		10,000	120,553
Flatiron-Creeley-Brush-Sterling 115-kilovolt transmission line and substations	2,347,000	2,080,116	107,000	60,000	99,884
Flatiron-Leyner-Brighton-Brush 115-kilovolt transmission lines and substations	1,419,000	745,114	540,000	11,000	122,886
Flatiron-Fort Collins-Cheyenne tap 115-kilovolt transmission line and substations	882,000	168,672	481,000	17,000	215,328
Brush-Limon 115-kilovolt transmission line and substations	952,000	678,023	110,000		163,977
Brush-Yuma-Wray 115-kilovolt transmission lines and substations	1,322,000	724,728	41,000	100,000	456,272
Sterling-Holyoke 69-kilovolt transmission line and substations	650,000	577,557	17,000	20,000	35,443
Salida-Gunnison 115-kilovolt transmission line and substations	1,433,000	95,569	1,232,431	105,000	
Communication, control and dispatching service equipment	1,134,000	315,630	648,000	170,370	
Permanent improvements	3,057,000	1,281,011	323,000	936,000	516,989
Total cost	160,068,000	104,829,027	27,199,207	21,586,100	6,453,666
Construction facilities		2,868,801	−1,710,000	−986,100	−172,701
Stores		1,054,477	−276,166	−683,000	−95,311
Project investigations		435,646	10,000	83,000	−528,646
Operation and maintenance during construction	20,730	20,730			
Transfers, credits, and other expenditures	242,712	−278,168	−7,766		528,646
Total expenditures	160,331,442	108,930,513	25,215,275	20,000,000	6,185,654
Unliquidated obligations		4,678,793	−3,678,793	−1,000,000	
Total obligations	160,331,442	113,609,306	21,536,482	19,000,000	6,185,654
Method of financing:					
Allotment, fiscal year 1952			19,000,000		
Prior-year balance available			2,536,482		
Transfer to project				1,000,000	
Allotments required				18,000,000	6,186,000

Mr. KIRWAN. Will you explain the estimate?
Mr. MARKWELL. I will make a brief statement.

GENERAL STATEMENT

The Colorado-Big Thompson project will provide supplemental water for lands in northeastern Colorado by diverting water from the western slope thrqugh the Continental Divide. The six power plants of the project are designed to have an installed capacity of 177,650 kilowatts and will be connected by a transmission system, interconnected with power systems of the North Platte, Kendrick, Riverton, Shoshone, and Missouri River Basin projects, in addition to private and other publicly owned power systems. The project is nearing the completion stage and initial water will be delivered through the Horsetooth feeder canal and the Poudre and North Poudre supply canals in the spring of 1953. All of the major irrigation facilities will be contracted for by the end of fiscal year 1952, except the Boulder Creek and South Platte supply canals and construction will be initiated in fiscal year 1953 on these by use of funds transferred from other projects.

Most of the $18,000,000 requested for fiscal year 1953 will be required to make final payments on contracts for work under contract at the beginning of the year. These include contracts for construction of the Willow Creek Dam, pumping plant, and feeder canal, Pole Hill and Flatiron power plants, Carter Lake Reservoir, Horsetooth feeder canal, North Poudre supply canal, and the equipment therefor.

All principal transmission lines for which funds are requested in fiscal year 1953 are under construction and funds requested will be devoted to making improvements, connections to the various switchyards and substations, installation of a synchronous condenser at the Beaver Creek substation, construction of the Muddy Pass substation, and generally bringing the transmission system into efficient operation for delivery of power that will be available in fiscal year 1953. An additional capacity of 96,250 kilowatts will be added to the system when the Pole Hill and Flatiron power plants are completed. Some of the funds requested will be used to construct or make additions to permanent improvements that are necessary for operation of the project.

When the project was authorized it was expected to provide needed supplemental irrigation water and a power supply adequate to meet normal load growth of the area. During World War II, the demands for agricultural products and power expanded beyond expectations and defense activities are again increasing in the area at such a rate that the full facilities of the project must be made available at the earliest possible date. The project will continue to assume a greater share in the national economy and defense effort by the spring of 1953 if all the funds requested for the fiscal year are made available.

I will summarize it by stating that by far the greater part of the $19 million in the program this year is to make major contracts that have already been awarded.

At the conclusion of fiscal year 1953 the project should be about 96 percent complete.

WHEELING AGREEMENT WITH PUBLIC SERVICE CO. OF COLORADO

Mr. KIRWAN. Has the power wheeling agreement with the Public Service Co. of Colorado been working satisfactorily?

Mr. MCPHAIL. Yes, sir.

Mr. KIRWAN. It has been working satisfactorily and everything is O. K. between the Government and the power people?

Mr. MCPHAIL. That is right.

FACILITIES TO BE COMPLETED IN 1953

Mr. KIRWAN. Will the power-generating facilities be completed in 1953?

Mr. MCPHAIL. The Pole Hill plant is now scheduled to come into operation in May 1953, and the Flat Iron power plant at that same time; unless we are delayed for reasons we do not now see both of those plants should be in operation by the end of the fiscal year 1953.

Mr. KIRWAN. Is the Department coming in for any new transmission lines?

SWITCHING FACILITIES REQUESTED

Mr. MCPHAIL. There are no new transmission lines presently contemplated on the project. There is one new feature which I think I should mention. We designated that as the Leyner switchyard tap.

We are proposing in this appropriation a small amount of money to provide switching facilities there, so that the Public Service Co. of Colorado can make an interconnection at that point, that point being the closest point to their main center of generation.

Mr. KIRWAN. It is a sort of arrangement to help one another, is that it?

Mr. MCPHAIL. That is right. It will provide interchange between the two systems. At the present time we lack such capacity for good interchange.

STATUS OF IRRIGATION FACILITIES

Mr. KIRWAN. What progress is being made toward delivering water to the farm areas?

Mr. MARKWELL. We now have under construction, and virtually complete, the Horse Tooth feeder canal, the Cudder canal; Horse Tooth Reservoir is virtually complete. Flat Iron is under construction. The remainder of the canals to distribute the water will be completed in 1953 and 1954.

There was no point in proceeding with these canals, Mr. Chairman, until we had finished the Granby Reservoir and had begun to collect the water on the other side so it could be run down through the tunnels, conduits, and power plants on the east side.

So, the construction of these canals are timed to the availability of water.

Mr. KIRWAN. Mr. Norrell.

ESTES PARK-FOOTHILLS POWER SYSTEM

Mr. NORRELL. I have been looking over an itemized statement of what the money would go for if allowed.

I see $10,719,239. Is that for the power system that you mention?

Mr. MARKWELL. Yes, sir.

Mr. NORRELL. What does that cover?

Mr. MCPHAIL. That covers the two power plants, primarily, the Flat Iron and Pole Hill plants. Those are the major items.

PROJECT SUBSTATIONS—MULTIPLE-LINE USE

Mr. NORRELL. You have an item for multiple-line use. That is $808,000. Where does that go?

Mr. MCPHAIL. That money is required for the completion of several substations that are under construction now.

REQUEST FOR COMPLETION OF LINES

Mr. NORRELL. Further down, I notice a lot of transmission lines. Is that just to complete what you already have under construction?

Mr. MCPHAIL. It is completion work in all cases. We are not asking for new starts on any power features except that one single item of Leyner switchyard.

Mr. NORRELL. That is the only new line?

Mr. MCPHAIL. Yes, sir.

Mr. NORRELL. That is not a new one, is it?

Mr. MCPHAIL. No, sir. It will provide facilities so that the Public Service of Colorado can connect with us at that point.

STATUS OF REPAYMENT CONTRACT

Mr. NORRELL. How are you getting along with your repayment contract out there?

Mr. MARKWELL. That repayment contract, as we have discussed in our previous hearings, sir, was entered into I believe in 1938, which provided for a repayment by the water users of $25 million.

Since that time a supplementary repayment contract has been entered into for, I believe, approximately $800,000 additional.

In addition to that we are furnishing a limited amount of water which is available now to the Colorado River conservancy district. That money will be applied against the construction cost. The balance of the cost of the project is to be repaid from power revenues.

Mr. NORRELL. You think still that the arrangements you have made will be sufficient for the contract to pay out in the length of time that you scheduled it to pay out?

Mr. MCPHAIL. Yes, sir. The rates are sufficient to accomplish that.

Mr. NORRELL. How much did you charge for flood control?

Mr. MARKWELL. There is not any flood control, I do not believe.

Mr. NORRELL. That is all.

Mr. KIRWAN. Mr. Jensen.

SCHEDULED COMPLETION OF PROJECT

Mr. JENSEN. When will the Colorado-Big Thompson project be completed?

Mr. MARKWELL. It will be about 96 percent complete at the end of the fiscal year 1953, and should be substantially completed in all its features by 1954, about the middle of fiscal year 1954.

Mr. JENSEN. Are you furnishing water at the present time to part of the project that is to get water?

Mr. MARKWELL. A limited amount of water is diverted through the tunnel to the conservancy district. It is run through the St. Marys and the Estes Park power plant, and turned into the Big Thompson River.

The water users who utilize the water in the Big Thompson are receiving limited amounts of water.

We get a water rental for this water which is applied against the construction cost. But there is only a limited amount because Granby Reservoir is not full and Willow Creek Dam is not completed yet.

Mr. JENSEN. Do you have any transmission lines in 1953?

Mr. MCPHAIL. No, sir.

Mr. MARKWELL. There are funds for the completion or wind-up of some of the lines, but no new lines.

Mr. JENSEN. That is all.

PALISADES PROJECT, IDAHO-WYOMING

Mr. KIRWAN. We will turn now to the Palisades project, Idaho-Wyoming. The allotment for this project in 1952 is $2 million and the estimate for 1953 is $10 million.

Pages 313 through 317 of your justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations	$76, 601, 000
Total obligations to June 30, 1951	3, 122, 052
Supplemental allotment, fiscal year 1952	2, 000, 000
Prior-year balance available	205, 421
Total obligations, fiscal year 1952	2, 205, 421
Allotment, fiscal year 1953	10, 000, 000
Total obligations, fiscal year 1953	10, 000, 000
Balance to complete	61, 273, 527

JUSTIFICATION OF ESTIMATE

Authorization.—The project was originally authorized by a finding of feasibility by the Secretary of the Interior on December 9, 1941 (H. Doc. No. 457, 77th Cong.). The original authorization recognized benefits only to irrigation, flood control, and power. Intensive investigations and studies conducted subsequently by the Bureau of Reclamation and other Federal agencies have enlarged and added to the above-mentioned benefits, necessitating the introduction of a bill before the Congress to reauthorize the project on a larger and broader basis. The project was reauthorized by the act of September 30, 1950 (Public Law 864, 81st Cong.).

Location.—Palisades Dam will be located on the main stem of the Snake River in eastern Idaho, about 8 miles west of the Idaho-Wyoming boundary, and 50 miles east of Idaho Falls, Idaho.

Description.—The Palisades Reservoir will provide supplemental irrigation water for some 650,000 acres of land located in the upper Snake River Valley. The 114,000-kilowatt power plant will provide hydroelectric energy to serve irrigation pumping, municipal industrial and rural cooperative loads, and will also supplement the proposed American Falls power plant when needed to supply power for the Minidoka north side development. Direct flood protection will be provided for land located on the Snake River plain above Idaho Falls. In addition, the Palisades project is closely related to construction by the Corps of Engi-

neers of downstream flood-control facilities, which will augment the primary protection brought about by Palisades Reservoir.

Construction and operation of Palisades Reservoir will enhance the recreational value of Jackson Lake Reservoir, located upstream in Wyoming's Jackson Hole country, by greatly decreasing the fluctuations now necessary in the level of Jackson Lake.

The basic plan for Palisades Dam consists of a 13,500,000-cubic-yard earthfill dam 260 feet high and 2,200 feet long at the crest; a concrete spillway with a capacity of 51,000 cubic feet per second; an outlet works with a capacity of 30,000 cubic feet per second; a reservoir with a capacity of 1,400,000 acre-feet; a power plant installation of 114,000 kilowatts with a minimum power head of 122 feet; and transmission lines necessary to deliver power to the load centers.

Repayment.—Contracts for the repayment of assignable irrigation costs are in the process of being formulated. Power revenues and irrigation payments will return the full reimbursable cost of the project.

Status.—Preconstruction surveys were started in 1945 and are now virtually complete. Construction was started in May 1949 on a 51-mile transmission line which was completed in August 1950. Work is under way on relocating the State highway around the reservoir area. Other work to June 30, 1951, includes the erection of 40 prefabricated temporary residences, shops, temporary office buildings, and other facilities. On June 30, 1951, the project was approximately 4 percent complete. During fiscal year 1952 volume I of the Definite Plan Report will be complete and submitted to the Commissioner. Plans were completed, specifications issued, and award made in December on a contract initiating construction of the river diversion tunnels. Relocation work on the section of United States Highway No. 26, now under contract, will be continued by the State of Idaho. Specifications will be prepared and award made in the spring on the prime construction contract for the Palisades Dam and power plant. It is presently planned that this contract will include a 2½-mile section of United States Highway No. 26 relocation extending through Little Elk fill (375,000 cubic yards) and Big Elk fill (1,600,000 cubic yards). Also a section of the Forest Service road to McCoy Creek will be included in the prime contract. Contract will be awarded late in the fiscal year for construction of permanent housing and administrative buildings and facilities and the manufacture of turbines and generators. Engineering and inspection activity will be conducted by the project necessary to administration of the above contracts and design activity will be continued leading to award of contracts early in fiscal year 1953 for remaining highway sections beyond Big Elk fill and for reservoir clearing.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 includes the continuation of work initiated in fiscal year 1952 on the prime construction contract, turbines, and generators and permanent camp facilities. Contracts will be awarded for relocation of remaining sections of highway around the reservoir area; temporary construction facilities and reservoir clearing. The acquisition of land and land rights throughout the reservoir area will be actively continued.

Justification.—The necessity for flood-control protection, irrigation water, and power in this area, which existed at the time of authorization, has become increasingly acute. The existing power shortage in the Pacific Northwest, which has been greatly increased by national defense requirements, must be alleviated at the earliest possible date. In addition, the production of food and fiber which will be made possible by the irrigation of project lands, will directly benefit the defense effort. In order to achieve these goals, the project should be completed at the maximum efficient rate. Any delay in the program proposed will necessarily retard flood-control protection, and achievement of the irrigated acres and additional generating capacity. Also delays in the construction period cause project costs to increase through deterioration of present facilities and additional maintenance requirements. Revenues to the Government as return on its investment from the operation of the power plant and through water users repayment should be initiated as soon as possible by completion of project construction.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Palisades Dam and Reservoir	$41,013,000	$839,941	$1,564,000	$6,450,000	$32,159,059
Land and land rights	1,906,000	227,152	20,000	450,000	1,208,848
Relocation of existing property	6,210,000	487,698	372,000	1,500,000	3,850,302
Clearing lands	2,220,000	41,080		300,000	1,878,920
Palisades power plant and switchyard	16,947,000	15,336	194,000	400,000	16,337,664
Transmission lines and substations	6,150,000	789,663	6,000		5,354,337
General property	1,642,000	61,016	85,000	600,000	895,984
Fish, wildlife, and recreational facilities	513,000				513,000
Total cost	76,601,000	2,461,886	2,241,000	9,700,000	62,198,114
Construction facilities		620,137	100,609	350,000	−1,070,746
Stores		70,300		−50,000	−20,300
Project investigations		174,047			−174,047
Transfers, credits, and other expenditures		−340,506			340,506
Total expenditures	76,601,000	2,985,864	2,341,609	10,000,000	61,273,527
Unliquidated obligations		136,188	−136,188		
Total obligations	76,601,000	3,122,052	2,205,421	10,000,000	61,273,527
Method of financing:					
Allotment, fiscal year 1952			2,000,000		
Prior year balance available			205,421		
Allotments required				10,000,000	61,274,000

Mr. KIRWAN. Please explain this request.

Mr. MARKWELL. Mr. Chairman, I will make a brief statement on it.

GENERAL STATEMENT

Construction on Palisades Dam, the principal feature of the Palisades project, is being initiated this fiscal year with funds provided in the Supplemental Appropriation Act, 1952. Palisades Dam, located on the main stem of the Snake River in eastern Idaho, will provide supplemental irrigation water for 650,000 acres of land and hydroelectric energy from a 114,000-kilowatt power plant to serve irrigation, pumping, municipal, industrial, and rural cooperative loads. The first unit of the power plant will be completed in October 1956. In addition the reservoir will provide direct flood protection for land on the Snake River plain above Idaho Falls and the project is closely related to construction by the Corps of Engineers of downstream flood-control facilities.

Preliminary construction has been under way since May 1949 and has provided a transmission line which will be used initially to deliver construction power, and temporary camp and office facilities. Work is also under way by the State of Idaho on relocating the State highway around the reservoir. In December 1951 a contract was awarded for construction of river diversion tunnels. Later in fiscal year 1952 the prime contract for Palisades Dam and power plant will be awarded as well as a contract for the construction of permanent housing and administrative buildings and facilities and contracts for the turbines and generators.

The $10,000,000 requested for fiscal year 1953 will provide for the continuation of work on the major contracts already mentioned and for the continuation of highway relocation, land acquisition, and reservoir clearing.

The need which existed at the time of original authorization in 1941, has become increasingly acute for power, flood protection, and

irrigation water. The project was reauthorized by the Eighty-first Congress in September 1950, and construction now should be continued at a maximum efficient rate in order to realize the project benefits without unnecessary delay.

Operation of the Palisades power plant for defense purposes has been considered. The irrigators have agreed to relinquish certain of the benefits they would normally receive from Palisades storage for the initial 5-year period to enable the operation of the Palisades power plant for the production of vitally needed defense power during this period. Based on median year water conditions it is estimated that the Palisades power plant would generate an average of 60,000 kilowatts during the months of October through April and an average of 100,000 kilowatts during the months of May through September, when operated to produce a maximum of power for defense purposes for a total annual generation of over 600,000,000 kilowatt-hours.

The normal production of power at Palisades Dam will be entirely incidental to the operation of the reservoir for irrigation and flood control. The production of firm power is normally possible only because a certain amount of water must be passed through the reservoir during the winter to fill the prior storage right of American Falls Reservoir. During the spring and summer months, the releases for flood control and for irrigation will be utilized for production of secondary commercial and irrigation pumping power to the extent of the turbine capacities.

In order to obtain the maximum benefits from Palisades for irrigation, flood control, and power, a plan of operation will be adopted which will provide for full coordination of the Palisades storage and power plant with other reservoirs and power plants of the Snake River system. Maximum system power benefits are obtainable by integrating the Palisades plant electrically and hydraulically with the other plants and reservoirs in the system.

Public Law 864 of the Eighty-first Congress requires the execution of certain water-savings contracts by December 31, 1951, unless the Secretary provides for a longer period to secure the contracts by not later than December 31, 1952. Acting Secretary Searles on December 6, 1951, extended this period into 1952. Negotiations are under way, and have been in progress for some time, with all of the water users' organizations concerned, there being some 55 or 60 such organizations. The job of translating the over-all and general agreements into appropriate contractual language is extremely complicated because there are involved both existing and proposed storage rights in American Falls, Palisades, and Jackson Lake Reservoirs and power rights in American Falls and at the Minidoka power plant. Progress in the drafting of the contracts and in the discussions with the contracting parties indicate that these contracts can be completed this spring.

I can summarize it by stating that we are pushing this project as rapidly as possible in order to produce power in Idaho and the Pacific Northwest where it is so badly needed.

Some contracts have already been awarded; others will be awarded during this fiscal year on the basis of the supplementary appropriation which was made available last year.

We need this $10 million to proceed with the work as rapidly as possible.

NATURE OF PROJECT

Mr. KIRWAN. Is this principally a power project?

Mr. MARKWELL. It is a multipurpose project, Mr. Chairman, which involves many benefits—irrigation, conservation, flood control, power, and wildlife.

It will be operated for the first 5 years after its completion as a power project. The irrigation work may go on simultaneously, provided it does not interfere with the power.

CONTRIBUTION TO DEFENSE EFFORT

Mr. KIRWAN. What contribution will this project make toward the defense effort?

Mr. MARKWELL. About 60,000 kilowatts. As I mentioned in my statement, it has been endorsed by the Defense Electric Power Administration in a statement to the effect that it would make a substantial contribution to the defense effort.

Mr. KIRWAN. When will it be finished?

Mr. MARKWELL. 1956.

Mr. KIRWAN. Will not there be any power out of it before that time?

Mr. MCPHAIL. October 1956 is the first date we expect to get power from it.

Mr. KIRWAN. You say there are possibilities of a good deal of irrigation from this project?

Mr. MARKWELL. It is an all-around conservation project. It will catch return flows. It will conserve water by agreement with the water users and also provide water for direct irrigation below the dam. It has a high flood-control benefit also.

Mr. KIRWAN. Mr. Norrell.

STATUS OF CONSTRUCTION

Mr. NORRELL. Has there been any work done on this project so far?

Mr. MARKWELL. Yes, sir. It was authorized originally about 10 years ago. Work was started on the temporary construction camp and completed, and some work was done on the transmission line when it was realized it should be reauthorized because the costs had been increased.

The project was then put into a caretaker status until the new authorization came through in 1950, I believe. But until the $2 million was made available last year by this committee——

Mr. NORRELL. Was that for construction or planning?

Mr. MARKWELL. Construction.

Mr. NORRELL. What have you done with the $2 million?

Mr. MARKWELL. We have awarded a contract for the outlet tunnel. We expect to issue invitations for the dam proper and power plant on March 1, 1952.

We expect to issue invitations on September 15, 1952, for the turbines and generators. We also entered into an agreement with the State highway department to work on the relocation of the highway which now runs right through the reservoir site.

As soon as we received the supplemental appropriation we started construction.

ALLOCATION TO FLOOD CONTROL

Mr. NORRELL. Do you know how much money can be charged under the law to flood control?

Mr. MARKWELL. We have an allocation. I would not like to quote it from memory. It is a rather large amount. I will insert that in the record, sir, if that is satisfactory.

Mr. NORRELL. Please do that.

(The information requested is as follows:)

The tentative allocation to flood control on the Palisades project is $22,733,300.

Mr. DIXON. The Congress authorized the project and considered the figures through the legislative committee's action.

CONTRIBUTION TO DEFENSE EFFORT

Mr. NORRELL. You do not think this would be very much help now in the present emergency as far as power is concerned?

Mr. MARKWELL. Mr. Norrell, we have no way of knowing how long the present emergency is going to last.

There is a long lead time on all power projects. It takes a long time to bring them in. This project will not require much critical material in the early stages. We hope the emergency will be over in 1956, but in any event we would anticipate the normal growth of the Nation would still require this and all the other power we could possibly put in. There is a Nation-wide power shortage.

Mr. KIRWAN. Mr. Jensen.

Mr. JENSEN. You had $2 million last year?

Mr. MARKWELL. Yes, sir.

REASON FOR DELAY

Mr. JENSEN. There was some question, I believe, by people up in that area as to why that project was held back, so to speak, more so than some other projects. They wanted to know why you allowed only $2 million for that project and allowed more for other projects of equal size and importance. Why the big spurt now?

Mr. MARKWELL. I think the $2 million figure probably came about because the Congress had given us an authorization for $2 million and they realized at the time they gave it to us that by the time the contracts were awarded, winter would slow up construction.

We gladly accepted the $2,000,000 and are doing the best we can with it. We will award a lot of big contracts toward the end of fiscal 1952, for example the major dam contract, the turbine and generators, some of which will require large sums in fiscal year 1952 but which will require the full $10 million in fiscal year 1953.

Mr. JENSEN. That is all.

BUFFALO RAPIDS PROJECT, MONTANA, FIRST DIVISION

Mr. KIRWAN. We will go on to the "Buffalo Rapids project, Montana, first division." The allotment for 1952 is $200,000 and the estimate for 1953 is $222,000.

Please insert in the record at this point pages 319 through 323 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$2,579,783
Total obligations to June 30, 1951		1,830,479
Allotment, fiscal year 1952	$200,000	
Prior year balance available	[1] 152,304	
Transfer from project	−246,000	
Total obligations, fiscal year 1952		106,304
Allotment, fiscal year 1953	$222,000	
Total obligations, fiscal year 1953		222,000
Balance to complete		421,000

[1] Includes $27,902 "Water conservation and utility project" funds.

JUSTIFICATION OF ESTIMATE

Authorization.—The project was initially authorized by a finding of feasibility by the Secretary on June 16, 1937, and approved by the President on September 27, 1937. On April 10, 1940, the Secretary recommended that the work be completed and operated under the terms of the water conservation and utility projects item in the Interior Department Appropriation Act, 1940. The President approved the recommendation on May 15, 1940. The act of October 10, 1949, Public Law 336, Eighty-first Congress, authorized the Secretary of the Interior to complete the construction of the project.

Location.—The first division of the Buffalo Rapids project is located along the north bank of the Yellowstone River in Prairie and Dawson Counties in eastern Montana.

Description.—The primary purpose of the project is to provide irrigation water to 15,700 acres of irrigable land in a semiarid eastern section of the State. Facilities to irrigate the 15,700 acres of irrigable land includes a pumping plant and a canal and lateral system.

Repayment.—A repayment contract covering construction funds has been prepared following negotiations with the irrigation district. Pursuant to Public Law 336, Eighty-first Congress, this contract was negotiated on the basis of repayment period of 60 years at the rate of $60 per irrigable acre as determined and announced by the Secretary of the Interior upon completion of the project. It is expected this contract will be completed and approved in fiscal year 1952 and receive court confirmation in fiscal year 1953. Negotiations have been delayed until such time as disposition of the old upper Glendive-Fallon district has been determined.

Status.—Construction of the irrigation works was started in 1937 by the Bureau of Reclamation. About 4 years later the major portion of the canal and lateral system was completed and the project was turned over to the Department of Agriculture for completion, development, settlement, repayment negotiations and operation and maintenance. The project was returned to the Bureau in 1949 for completion, operation and maintenance, and the negotiation of repayment contract.

The project is operated by the Buffalo Rapids Farms Association, a cooperative organization of water users under a contract and lease with the Bureau of Reclamation. As of June 30, 1952, the project will be approximately 91 percent complete, with the exception of drainage construction which will be approximately 15 percent complete.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes continuation of construction to alleviate the severe silting problem now encountered in the inlet channel of the Buffalo Rapids, first division. The construction of drainage ditches and structures started in the fiscal year 1952 will be continued in fiscal year 1953.

Justification.—The inlet channel to the pumping plant is approximately 1,000 feet long, and annually silts full to a depth of 4 to 6 feet. The operation and maintenance of this long intake channel at present costs at least 10 percent of the total O. and M. budget. The continued operation of heavy excavating equipment is required throughout the irrigation season to maintain the channel so that an ample supply of water may reach the pumps.

It will only be a few years until the available areas for the disposal of the excavated materials from the channel will be filled and excessive hauls will become necessary, further increasing and making the cost prohibitive. The cleaning of this channel through the operating season stirs up and causes large amounts of sand and silt to pass through the pumps with the resulting excessive wear on pumps and large deposits in the canal and lateral systems. At the present time,

farm units are being withheld from sale because of serious seepage conditions. The construction of a drainage system should alleviate this condition and permit the sale of these lands.

The total estimated cost has been reduced from $2,735,000 to $2,680,000 (anticipated total obligations of $2,579,783). This reduction is due to the elimination of the account for "Operation and maintenance during construction" and transfer of existing distribution lines and substations to Fort Peck project. The amount of $39,000 previously identified as "Construction completed by Department of Agriculture" has been distributed to laterals and approximately $17,000 general investigation costs has been distributed to features.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Pumping plant	$574,000	$340,002	$50,000	$63,000	$120,998
Canals	1,102,000	1,085,580	16,420		
Laterals	408,000	387,866	20,134		
Drains	586,327	63,298	50,573	169,000	303,456
General property	9,673	9,673			
Total cost	2,680,000	1,886,419	137,127	232,000	424,454
Construction facilities		11,391	1,622	−10,000	−3,013
Project investigations		13,180	−13,180		
O. and M. during construction	39,031	39,031			
Transfers, credits, and other expenditures	−139,248	−119,880	−18,927		−441
Total expenditures	2,579,783	1,830,141	106,642	222,000	421,000
Unliquidated obligations		338	−338		
Total obligations	2,579,783	1,830,479	106,304	222,000	421,000
Method of financing:					
Allotment, fiscal year 1952			200,000		
Prior year balance available: Construction and rehabilitation			124,402		
Transfer from project			−246,000		
Allotment required				222,000	421,000

Mr. KIRWAN. Will you please explain that?

Mr. LINEWEAVER. I will make a statement on that.

GENERAL STATEMENT

The facilities of this project, consisting primarily of a riverside pumping plant and a canal and lateral system, are capable of supplying irrigation water to 15,700 acres of land along the Yellowstone River in eastern Montana, of which about 14,000 acres were irrigated in 1951. Construction is approximately 95 percent complete except for the drainage system, which will be 40 percent complete on June 30 of this year.

In addition to continuing work on urgently needed drainage facilities, the funds requested for fiscal year 1953 will provide for continuation of construction of works for the protection of the pumping plant inlet channel against damaging accumulations of sand and silt.

BALANCE TO COMPLETE

Mr. KIRWAN. Why do you not finish this project up now? I see where $424,000 would complete the project.

Mr. LINEWEAVER. Mr. Chairman, the problem there is the clean-up work, principally the drainage. It is axiomatic that the drainage work cannot be completed until the irrigation water has been in the ground for several years to determine what the drainage requirements will be.

That has been the practice. We would like to, if our engineers and water users could foresee just exactly what the drainage conditions would be, put the drainage in now. It would be uneconomical if we could foresee what would be required in drainage.

Mr. KIRWAN. Will you be able to clean it up next year?

Mr. LINEWEAVER. We hope so.

BUFFALO RAPIDS PROJECT, MONTANA, SECOND DIVISION

Mr. KIRWAN. We will turn to the "Buffalo Rapids project, Montana, second division." The allotment for 1952 is $77,600 and the request for 1953 is $111,000.

Please insert in the record at this point pages 325 through 328 of the justification.

(The pages referred are as follows:)

Summarized financial data

Estimated total obligations		$2,075,012
Total obligations to June 30, 1951		1,554,427
Allotment, fiscal year 1952	$77,600	
Prior year balance available	16,985	
Total obligations, fiscal year 1952		94,585
Allotment, fiscal year 1953	$111,000	
Total obligations, fiscal year 1953		111,000
Balance to complete		315,000

JUSTIFICATION OF ESTIMATE

Authorization.—The Buffalo Rapids project, second division, was authorized under the water conservation and utility project item in the Interior Department Appropriation Act 1940, pursuant to a recommendation of the Secretary, approved by the President on October 11, 1939. An increase in the area of the project was approved by the President on May 15, 1940. The act of October 10, 1949 (Public Law 336, 81st Cong.), authorized the Secretary to complete the construction of the project.

Location.—Prairie and Custer Counties in eastern Montana, extending along the south bank of the Yellowstone River from 18 miles northeast of Miles City, Mont., to 2 miles east of Fallon, Mont.

Description.—This project consists of three units, and a total of 11,600 irrigable acres, divided as follows: Shirley unit, 5,300; Terry unit, 2,800; Fallon unit, 3,500. Water is pumped from the Yellowstone River. Power from the Fort Peck project is being used and delivered by Montana-Dakota Utilities Co. through a power wheeling agreement between the Bureau and the power company.

Repayment.—Reimbursable costs include appropriated funds to be repaid under contract between water users and the Bureau of Reclamation. Pursuant to the act of October 10, 1949 (Public Law 336, 81st Cong.), the irrigation district shall pay to the United States a construction cost obligation equal to $60 for each acre of irrigable land within the district. A repayment contract is currently being negotiated with the water users.

Status.—Construction of the irrigation system was started in September 1940 on Shirley and Terry Units. In March 1946 an allocation of funds was approved for construction of the Fallon unit. Water was first delivered on the Shirley unit in 1944, and on the Terry unit in 1945. Water was delivered to the Fallon unit in July 1950. As of June 30, 1952, all three units will be approximately 95 percent complete, except for drainage construction. Preliminary drainage investigations have been started.

The project estimate has been decreased from that previously shown due principally to the transfer of tap line and substation facilities to the Fort Peck project.

Work proposed, fiscal year 1953.—Minor water and erosion control structures will be constructed in canals and laterals. Seepage and water level conditions will be studied and detailed investigations will be made where required. Speci-

fications will be issued and construction started on drainage area No. 1 of Shirley and Terry units.

Justification.—Studies of drainage conditions must be continued in order that corrective measures can be instituted in time to prevent the loss of irrigable land. Minor water and erosion control structures are needed for the satisfactory operation of the project.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Shirley and Terry units:					
Pumping plant	$507,000	$504,593	$2,407		
Canals	354,500	347,666	2,000	$4,834	
Laterals	322,000	299,169	6,443	16,388	
Drains	333,000	7,058	18,000	70,000	$237,942
Structures and improvements	27,731	26,129			1,602
Telephone system	2,544	2,544			
Fallon unit:					
Pumping plant	480,000	422,367	57,633		
Canals	166,000	128,571	37,429		
Laterals	118,000	104,798	4,917	8,285	
Drains	134,468	5,659	1,500	10,000	117,309
General service facilities	9,757	9,757			
Total cost	2,455,000	1,858,311	130,329	109,507	356,853
Construction facilities		35,881	−13,000	−1,507	−21,374
Stores		11,264			−11,264
Project investigations		21,540	−11,911		−9,629
Operation and maintenance during construction	105,600	105,600			
Transfers, credits, and other expenditures	−485,588	−486,183	−2,819	3,000	414
Total expenditures	2,075,012	1,546,413	102,599	111,000	315,000
Unliquidated obligations		8,014	−8,014		
Total obligations	2,075,012	1,554,427	94,585	111,000	315,000
Method of financing:					
Allotment, fiscal year 1952			77,600		
Prior year balance available			16,985		
Allotment required				111,000	315,000

Mr. KIRWAN. Will you please explain that?

Mr. LINEWEAVER. I have a statement.

GENERAL STATEMENT

The facilities of this project, consisting of four pumping plants and a distribution system, are capable of supplying irrigation water to 11,600 acres of land along the Yellowstone River in eastern Montana, of which about 7,000 acres were irrigated in 1951. Construction is approximately 95 percent complete, except for the drainage system. Investigations of drainage needs have been in progress during the past year and are being continued during the current year.

Funds requested for fiscal year 1953 are required for the completion of construction of minor water and erosion control structures in canals and laterals, for continued drainage investigations, and for starting construction of drains.

Mr. KIRWAN. You would give the same reply to my question as to completing this project as you gave on my question concerning the first division?

Mr. LINEWEAVER. Yes, sir.

Mr. KIRWAN. Mr. Norrell.

Mr. NORRELL. No questions.

Mr. KIRWAN. Mr. Jensen.

FINAL COMPLETION OF PROJECTS IN 1952

Mr. JENSEN. Did you get any projects off the slate this year, or will you get any off this year, in late fiscal 1952?

Mr. LINEWEAVER. Only for such clean-up work as drainage and minor work, Mr. Jensen. The irrigation and drainage problems are such that it is just impossible and impracticable to clean them up, but the difficulty here is due largely to drainage requirements.

Mr. JENSEN. Is it not possible that the irrigation districts would take that responsibility?

Mr. LINEWEAVER. We are trying wherever possible to have the irrigation districts under the contracts to assume the responsibility for the drainage, where it is possible to foresee what it will be and estimate what the cost will be and include the amount in contracts, whereby they will assume the drainage responsibility.

Mr. JENSEN. They are not doing it. So you are not getting it done, are you?

Mr. LINEWEAVER. Not as successfully as we have hoped we could.

CONTRACTS RELIEVING UNITED STATES OF RESPONSIBILITY

Mr. JENSEN. How many contracts do you have now that you have entered into in the last couple of years where you have been able to wash the Government's hands of any responsibility?

Mr. LINEWEAVER. Here are four projects which will be completed in fiscal year 1953, Boise-Anderson Ranch, which is power, the Boise-Payette, which is irrigation, and the Colorado River front levee system, and the Rio Grande Elephant Butte power system.

Units of the Missouri River Basin project which will be completed in 1953 are Boyson Dam, Angostura, Key Hole Dam, the Fort Clark irrigation system in North Dakota, and the Cartwright unit in Montana. Those five will be completed in 1953, so the assumption is that there will be no clean-up work on those five projects as we see it now.

(The following information was subsequently submitted:)

During fiscal years 1951 and 1952 to date, the operation and maintenance of project irrigation works has been transferred to the water users on six irrigation projects. This is in keeping with the congressional and departmental policy that as soon as feasible after completing construction of a project, the water users assume the responsibility of actually operating and maintaining the project works. As part of the regular operation and maintenance of the project works, the water users accomplish a considerable amount of drain installation from year to year as the need develops. In some instances, however, the drainage problem may develop so suddenly and may be of such proportions as to be beyond the ability of the water users to cope with from current operation and maintenance revenues. In such cases, the irrigation districts may enter into contracts with the United States for the performance of and repayment of drain construction work either as supplemental construction or as rehabilitation and betterment work. When the installation of drains is accomplished as rehabilitation and betterment work under the provisions of the act of October 7, 1949 (63 Stat. 724) as amended by the act of March 3, 1950, the work may actually be accomplished by the irrigation district with funds advanced by the United States. The Bureau of Reclamation strongly encourages the irrigation districts to install drainage works insofar as possible as part of their annual operation and maintenance program.

Mr. JENSEN. You mean by that that you will ask for no appropriations for those projects in fiscal 1954?

Mr. LINEWEAVER. That is what the situation is now.

Mr. JENSEN. We will try to remember that.

Mr. LINEWEAVER. I am sure it will be in the record and I am certain you will remember it.

HUNGRY HORSE PROJECT, MONTANA

Mr. KIRWAN. We will move on to the Hungry Horse project in Montana. The allotment for 1952 is $22 million. The estimate for 1953 is $13,245,000.

Pages 330 through 333 of your justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$109, 230, 000
Total obligations to June 30, 1951		67, 445, 362
Allotment, fiscal year 1952	$22, 000, 000	
Prior-year balance available	$250, 828	
Total obligations, fiscal year 1952		22, 250, 828
Allotment, fiscal year 1953	$13, 245, 000	
Total obligations, fiscal year 1953		13, 245, 000
Balance to complete		6, 288, 810

JUSTIFICATION OF ESTIMATE

Authorization.—The dams and facilities for generating electric energy were authorized by the act of June 5, 1944 (58 Stat. 270). Construction of related irrigation works are subject to a report and findings thereon being made by the Secretary of the Interior in accordance with reclamation law.

Location.—The project is located in Flathead County in northwestern Montana on the South Fork of the Flathead River. The dam site is situated approximately 5 miles from the confluence of the South Fork with the main stem of the Flathead River and the reservoir will extend 34 miles upstream from the dam on undeveloped public land of the Flathead National Forest.

Description.—The purpose of the project is to provide electric power generation, flood control, improvement of navigation and regulation of river flow. Major project features include a 564-foot-high concrete arch gravity-type dam and a power plant to house four generating units of 71,250 kilowatts each. The 3,500,000 acre-foot reservoir will greatly increase firm power production and potential at all existing and proposed downstream power plants on the Flathead, Clarks Fork, and Columbia Rivers. Total installed capacity will reach 285,000 kilowatts, with initial production by the first generator scheduled for October 1952.

Repayment.—All reimbursable costs will be repaid by revenues from the sale of power. Studies are being continued with the Bonneville Power Administration, designated agency for the distribution and sale of power, and other agencies of the Government leading to final determination of cost allocations for flood control, navigation, fish and wildlife protection, and recreation.

Status.—Construction was begun May 24, 1946. As of June 30, 1951, the dam had been raised to a height of nearly 300 feet with the placement of more than 1,500,000 cubic yards of concrete. Work was well under way on the installation of turbines and erection of the superstructure for the power plant, and construction of the switchyard had been started. Approximately 18,000 of the 24,000 acres of timber to be removed from the reservoir had been cleared and work was begun on construction of a Forest Service road on the west side of the reservoir (all road work on the east side of the reservoir having been completed). The permanent camp is essentially completed. New work to be undertaken includes closure of the diversion tunnel, and installation of generators, transformers, and other major items of electric equipment in the power plant and switchyard. By June 30, 1952, the project will be approximately 80 percent complete.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for the completion of all clearing in the reservoir area and the continuation of con-

struction for relocating Forest Service facilities around the reservoir. Mass concrete placement in the dam will be completed to allow storage of water in the reservoir to its full capacity. Installation of generators, switchgear, and transforming equipment is scheduled to permit placing two 71,250-kilowatt generating units in service by October and December of 1952, respectively.

Justification.—Evidence of the continuing need and urgency for additional power in the Northwest is the fact that applications have been received for the total potential output of electric energy by the Hungry Horse power plant 2 years in advance of the scheduled date for initial power generation. With all of the major features of the project presently under construction and ahead of schedule, it may be possible to improve by 1 year the goal of water storage, the release of which will make possible a significant increase in power production at existing downstream power plants. If adequate funds are made available to allow construction to proceed at its present rapid rate, substantial savings in construction cost will be realized by the Government and downstream benefits of flood protection and improvement of navigation will become effective earlier than was originally anticipated.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Hungry Horse Dam	$65,125,000	$35,709,097	$17,295,000	$8,036,000	$4,084,903
Relocation of Forest Service facilities	4,730,000	1,335,831	1,270,000	1,715,000	409,169
Reservoir clearing	8,520,000	6,319,467	1,780,000	420,533	
Hungry Horse power plant	25,350,000	10,780,473	9,270,000	3,540,000	1,759,527
Hungry Horse switchyard	2,480,000	609,288	1,515,000	215,000	140,712
General property	2,595,000	2,105,464	128,000	116,922	244,614
Total cost	108,800,000	56,859,620	31,258,000	14,043,455	6,638,925
Construction facilities		1,111,240	−322,000	−478,000	−311,240
Stores		1,080,625	−300,000	−400,455	−380,170
Project investigations		47,018	−3,000	−20,000	−24,018
Transfers, credits, and other expenditures	430,000	−78,361	43,048	100,000	365,313
Total expenditures	109,230,000	59,020,142	30,676,048	13,245,000	6,288,810
Unliquidated obligations		8,425,220	−8,425,220		
Total obligations	109,230,000	67,445,362	22,250,828	13,245,000	6,288,810
Method of financing:					
Allotment, fiscal year 1952			22,000,000		
Prior year balance available			250,828		
Allotments required				13,245,000	6,289,000

Mr. KIRWAN. Please explain the estimate.

Mr. MCPHAIL. I have a statement on that.

GENERAL STATEMENT

Record breaking construction progress on Hungry Horse Dam during 1951, made it possible to initiate storage of water in the Hungry Horse Reservoir on September 21, 1951. This ahead-of-schedule storage insures the availability of water for release through the Hungry Horse power plant next fall. The first 71,250-kilowatt generator, which is now being installed in the power plant, is scheduled to go on the line in October 1952, with the second unit following in December 1952. The full plant capacity of 285,000 kilowatts from four units will be available by November 1953, bringing additional power to municipalities, industry, and defense installations in the Pacific Northwest during the 1953–54 winter peak-load period.

Power from the Hungry Horse project will be transmitted and marketed by the Bonneville Power Administration. Bonneville's present plans call for 230-kilovolt transmission lines to be constructed southeast to Anaconda and extended to Silver Bow, Mont., for serving

the Victor chemical plant and westward to Spokane. There is in existence a 115-kilovolt line from Hungry Horse site to Kerr substation in the vicinity of the Montana Power Co's Kerr power plant near Polson, Mont.

With all of the major features of the project presently under construction and ahead of schedule, adequate funds are necessary to allow construction to proceed at its present rapid rate. Placement of mass concrete in the dam will be completed during 1952, with work to be started on the construction of the roadway across the crest of the dam and parking areas at the abutments. The fiscal year 1953 program also provides for the continuation and completion of the switchyard, access roads, and relocation of roads and clearing within the reservoir area. Reclamation is very happy to report the outstanding progress which is being maintained by Bureau and contractor forces on the Hungry Horse project.

I am available for any questions.

PROJECT AHEAD OF SCHEDULE

Mr. KIRWAN. Are you on schedule with the Hungry Horse project?

Mr. MCPHAIL. It is a little ahead of schedule.

Mr. KIRWAN. When will you start to deliver power there?

Mr. MCPHAIL. We will start initial power delivery in October of this year and complete the installation in November of 1953.

Mr. KIRWAN. It will also help to control and serve water to the Columbia River in the summertime when they need it?

Mr. MCPHAIL. It is already rendering that service.

Mr. KIRWAN. It will render it in the summertime when they need it and provide flood control in the wintertime?

Mr. MCPHAIL. Yes, sir.

Mr. KIRWAN. There are no new transmission lines connected with it?

Mr. MCPHAIL. No, sir. If there are lines, they will be handled by the Bonneville Power Administration.

Mr. KIRWAN. Mr. Norrell.

POSSIBLE CHANGE OF NAME

Mr. NORRELL. I am wondering if we can get the name changed some time. It ought not to be a "Hungry Horse" any longer; it ought to be fat by this time. Can anybody tell me where that name came from?

Mr. LINEWEAVER. Yes, sir. It is supposed to have been originated because of a horse that went hungry and could find no grass there. I have in my office a replica of a hungry horse.

Mr. NORRELL. I have, too.

Mr. LINEWEAVER. This horse is supposed to have tried to survive there by nibbling the grass, but could not find much grass and just turned out to be a hungry hourse.

Mr. NORRELL. The local people could think of some name that sounds a little better than "Hungry Horse."

Mr. LINEWEAVER. They think it is quite picturesque, Mr. Norrell.

Mr. NORRELL. There are others in the country who do not. They are the ones to be considered.

ALLOCATION TO FLOOD CONTROL

How much in this project do you charge ultimately to flood control? Do you have that figure?

Mr. LINEWEAVER. The tentative allocations are commercial power, $89,131,000; navigation, $367,000; flood control, $19,302,000; for a total of $108,800,000.

The Bonneville Power Administration, as I understand it, is cooperating in that determination. We certainly hope to have the allocations finally completed by the time the project is in operation.

Mr. NORRELL. Is there a provision under the law whereby you have to be governed in regard to the allocation of cost?

Mr. LINEWEAVER. Yes, sir; there is special authorization for the Hungry Horse project. That provides for these allocations to the various purposes as determined by the Secretary.

LAND TO BE IRRIGATED

Mr. NORRELL. How much land is going to be irrigated?

Mr. LINEWEAVER. Eventually there is the Kalispell project that is nearby which is subject to future authorization.

It is something like 40,000 acres in that area. The authorization for Hungry Horse Dam in 1943 or 1944 provided only for the dam and power plant and reserved the authorization for the irrigation facilities.

Mr. NORRELL. Then under the existing project authorization there will be no land irrigated. It will be used only for power. Is that correct?

Mr. LINEWEAVER. Power, flood control, and a small allocation to navigation.

Mr. NORRELL. If the other angle is considered, that will take another law?

Mr. LINEWEAVER. It will take additional authorization for irrigation.

Mr. NORRELL. Mr. Jackson.

Mr. JACKSON. The first generators are to go on the line in October?

Mr. MCPHAIL. October 1952.

PRINCIPAL BENEFITS DOWNSTREAM

Mr. JACKSON. The principal benefits of Hungry Horse are the downstream benefits, that is, the ability to store a very substantial amount of water behind Hungry Horse and the coordination of the release of that water with the dams on the Columbia River; is that right?

Mr. MCPHAIL. That is true.

Mr. JACKSON. For every generator at Coulee you need about 1,300,000 acre-feet?

Mr. MCPHAIL. It is roughly in that magnitude. It varies as the development of the river proceeds.

FIRM POWER OUTPUT

Mr. JACKSON. What is the firm power output at Hungry Horse, at the dam, and also downstream?

Mr. McPHAIL. I would like to submit those figures for the record, if I may, Mr. Jackson.

Mr. JACKSON. I would appreciate your inserting them at this point.

(The information requested is as follows:)

HUNGRY HORSE BENEFITS

The realization of the maximum benefits of Hungry Horse project requires a plan of operation carefully coordinated with the operation of other Columbia River Basin projects. In order to accomplish coordinated operation of the system it is necessary that all parts of the system be interconnected by a high-voltage transmission network. By use of the Federal transmission network for interchange of power, it is possible to operate Hungry Horse at high plant production during the critical winter months and reduce production during the high runoff months in the spring and summer.

During the system storage-control period, October 1 to April 15, Hungry Horse storage will be drawn down for power production at Hungry Horse and downstream plants, thus making reservoir capacity available for control of spring floods. Full benefit of the project for flood control can be attained with no appreciable disadvantage to power production since the drawdown for flood control will be gaged according to the forecast inflow so as to insure that the reservoir will refill. During the spring and summer months generation at Hungry Horse will then be reduced to a relatively low value and adequate summertime secondary energy will be available from downstream plants to supplement Hungry Horse output to the extent required to supply firm loads during this period.

Power benefits attributable to Hungry Horse with this coordinated operation plan is given in the following tabulation, which includes existing and authorized plants under the C–2 level of development. The benefits as tabulated here relate to minimum year stream-flow conditions and the allocation of downstream benefits is on a pro rata basis. This means that the total downstream benefits at each plant is proportioned to each upstream storage project in ratio of the project storage to the total storage.

Power benefits attributable to Hungry Horse in average kilowatts

	Kilowatts
Hungry Horse (at site benefits)	223, 000
Downstream Federal plants:	
Albeni Falls	1, 000
Grand Coulee	195, 000
Chief Joseph	116, 000
Priest Rapids	101, 000
McNary	64, 000
John Day	96, 000
The Dalles	70, 000
Bonneville	44, 000
Total	687, 000
Downstream privately owned plants:	
Rock Island	26, 000
Kerr	92, 000
Thompson Falls	27, 000
Total	145, 000
Total power benefits from Federal plants	890, 000
Total power benefits attributable to Hungry Horse	1, 055, 000

RELEASE OF WATER

Mr. JACKSON. As I understand it, you release the water at Hungry Horse at a time when the water level at Franklin D. Roosevelt Lake is at a low yearly level?

Mr. McPHAIL. That is right. We will hold the water back as much as possible during the flood season and not release it until there is a deficiency of water in the main stream below. Then water will be released to fill up that gap.

Mr. JACKSON. That adds to the firm-power output at Coulee?

Mr. McPHAIL. Coulee and Bonneville.

Mr. JACKSON. And the privately owned dam at Rock Island?

Mr. McPHAIL. That is right.

Mr. JACKSON. As I understand it, when you have the water going over the dam at Coulee, so to speak, you have this line that runs on up to Montana that in effect repays them for your release of the surplus power at Coulee and the Bonneville systems and sends that back to Montana over the transmission line which is about to be completed?

Mr. McPHAIL. That is correct. When there is surplus water in the Columbia River itself, we will endeavor to hold the power output and the water releases at Hungry Horse to a very minimum.

POWER OBTAINED BY RIVER COORDINATION

Mr. JACKSON. This dam is an excellent example of the additional power that can be obtained by proper river coordination, is that right?

Mr. McPHAIL. Yes, sir; it is.

Mr. JACKSON. It is not just the power that you turn out at the dam site, but it is the over-all aggregate of power that is made available on all the dams downstream by reason of a properly coordinated release of the water?

Mr. McPHAIL. That is right.

USE OF POWER FROM HUNGRY HORSE

Mr. JENSEN. Am I right in assuming that the power users in Montana will receive all or most of the power that has been generated at Hungry Horse?

Mr. McPHAIL. I am not sure just what proportion they will get, Mr. Jensen, since the power is being marketed by the Bonneville Power Administration. My understanding is they will get a very substantial part of it.

Mr. JENSEN. Will they get all of it?

Mr. McPHAIL. I cannot answer that.

Mr. JENSEN. I think I saw something in some paper to that effect, that there were three or four concerns in the State of Montana that had already contracted for all of the power from Hungry Horse. Do you know anything about that?

Mr. McPHAIL. I do not know, sir.

Mr. LINEWEAVER. I think that is substantially correct, Mr. Jensen.

Mr. JENSEN. You say you think it is?

Mr. LINEWEAVER. I saw the same article in the paper. I can have it looked up and inserted in the record if you would like it.

Mr. JENSEN. That is not necessary; no. I just read that.

That being the case, very little, if any, power will flow westward into the Washington-Oregon area, a power shortage area?

Mr. McPHAIL. Due to the releases of water from Hungry Horse there will be substantially more power generated at Grand Coulee and Bonneville. The last three additional units in the Grand Coulee

power plant were largely justified by the storage that would become available from Hungry Horse Dam to operate them in the off-flood season.

RATES

Mr. JENSEN. What do you propose to charge for Hungry Horse power?

Mr. MCPHAIL. I do not know what the charge will be, but it will be the amount that is required to effect repayment of the project.

Mr. JENSEN. That is quite an expensive project. You do not expect to sell power as cheaply as 2 cents a kilowatt, do you?

Mr. MCPHAIL. The power will be delivered to the Bonneville Power Administration at the bus bar of the plant.

That agency will market it to the consumers. The payment that will come to the Bureau of Reclamation for the repayment of Hungry Horse will be decided by the necessary returns to effect repayment.

Mr. JENSEN. I understand that. There are many reasons why we have such a cheap source of power in Bonneville. It is due to the fact that Grand Coulee and Bonneville were built for comparatively low prices as compared to today's prices. Now the prices are high while we are constructing Hungry Horse. It is rather interesting to know what will be charged for the power.

That is all, Mr. Chairman.

SUN RIVER PROJECT, MONTANA, GREENFIELDS DIVISION

Mr. KIRWAN. The next project is the Sun River project, Montana, Greenfields division. The allotment for 1952 is $40,400 and the allotment for 1953 is $40,000.

Pages 335 through 338 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$9,671,262
Total obligations to June 30, 1951		9,516,563
Allotment, fiscal year 1952	$40,400	
Prior year balance available	584	
Transfer from project	—5,000	
Total obligations, fiscal year 1952		35,984
Allotment, fiscal year 1953	$40,000	
Total obligations, fiscal year 1953		40,000
Balance to complete		78,715

JUSTIFICATION OF ESTIMATE

Authorization.—The Sun River project was authorized by the Secretary of the Interior pursuant to the act of June 17, 1902 (32 Stat. 388, 43 U. S. C. 391, et seq.), on February 26, 1906.

Location.—The project is located in north-central Montana in Teton and Cascade Counties. Project works extend along the north side of the Sun River from 20 to 50 miles west of Great Falls, Mont. The town of Fairfield is project headquarters.

Description.—The project is one of the oldest reclamation projects, water first being delivered on the Fort Shaw division in 1909. Water for irrigation is obtained from the natural flow of Sun River and its tributaries, supplemented by storage in

three reservoirs. The project is prepared to supply water to 97,000 acres, of which 83,000 acres are in the Greenfields division and 14,000 acres in the Fort Shaw division. Water is diverted from the North Fork of Sun River at Sun River diversion dam into the Pishkun canal leading to Pishkun Reservoir. The water is then released into Sun River slope canal for the irrigation of land on the north side of the Sun River comprising the Greenfields division. A separate diversion is made from Sun River to irrigate the land in the Fort Shaw division which is located on the south side of the river. All three storage reservoirs are completed, as well as the canal system.

Repayment.—Repayments on construction for the Greenfields division were first made under individual waterright applications and are presently being made under the terms of a repayment contract signed by the Greenfields irrigation district on June 22, 1926. The distribution system for the Greenfields division and the storage system for the entire project have been operated by the Greenfields irrigation district since 1931. The total estimated cost of the work is covered by repayment contracts.

Status.—Since the start in 1906, construction has continued as new lands were placed under irrigation and additional irrigation facilities were required. Water was supplied to project lands by direct diversion from the Sun River until 1929 when Gibson Dam was completed; Pishkun dikes were completed in 1940 and Willow Creek Dam in 1942. Remaining construction includes completion of the spillway lining for Gibson Dam and completion of a long-range program of drainage construction. The long-range drainage program will continue through fiscal year 1955; and as seeped areas develop, new drains will be constructed as part of the division-wide drainage system. On June 30, construction of the division was complete, except for the spillway and drains as noted above. The long-range drainage program has been continued through fiscal year 1951, with 3.75 miles of new drains completed and 1.95 miles of existing drains deepened during the year. A normal program of construction of new drains will be continued by Government forces during fiscal year 1952. Investigations of new construction required in following years will be under way.

Work proposed, fiscal year 1953.—A normal program of construction on new drains will be continued. Studies and investigations of new construction required for completion of this project in following years will be under way.

Justification.—In order to insure that drainage is provided as seeped areas develop, continuation of the drainage program is required through fiscal year 1955. Failure to complete the remaining program would result in damage to the lands of the project, as full utilization of presently irrigated land and reclamation of land temporarily unproductive is dependent on the drainage construction. The total estimated cost has decreased from $9,597,449 to $9,463,100 (estimated obligations, $9,671,262) due to deletion of operating expenses from construction costs.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Dams and reservoirs	$3,502,954	$3,483,854			$19,100
Drains	996,883	854,167	$37,100	$42,000	63,616
Canals and conduits	3,243,323	3,243,323			
Laterals	1,605,352	1,605,352			
General property	114,588	114,588			
Total cost	9,463,100	9,301,284	37,100	42,000	82,716
Construction facilities		6,638	−637	−2,000	−4,001
Transfers, credits and other expenditures	208,162	208,216	−54		
Total expenditures	9,671,262	9,516,138	36,409	40,000	78,715
Unliquidated obligations		425	−425		
Total obligations	9,671,262	9,516,563	35,984	40,000	78,715
Methods of financing:					
Allotment, fiscal year 1952			40,400		
Prior year balance available			584		
Transfer from project			−5,000		
Allotments required				40,000	79,000

Mr. KIRWAN. Do you have a statement on that?

Mr. MARKWELL. I have a statement, and then I will answer questions.

GENERAL STATEMENT

The Greenfields division of the Sun River project includes 83,000 acres of irrigable land in northwestern Montana. This is one of the Bureau's oldest projects, on which construction work has been substantially complete for a number of years. Funds requested for fiscal year 1953, in the amount of $40,000, will provide for the construction of drainage facilities needed to assure continued full utilization of presently irrigated land and to return to full productivity small areas that are temporarily unproductive because of seepage conditions. Investigations of new drain construction required in following years will be continued. The total estimated cost of the work is covered by existing repayment contracts.

PURPOES OF REQUEST

Mr. KIRWAN. I see you are asking for $40,000 to clean up the whole project. Is that drainage again?

Mr. MARKWELL. Very largely. I call the attention of the Chairman to the fact that this project was authorized as long ago as 1906 and we still have a few drainage problems.

Mr. KIRWAN. Are there any questions, Mr. Norrell?

Mr. NORRELL. If the committee will allow you the balance of $78,715, could we rely on the fact that we would not get a budget estimate for this project next year?

Mr. MARKWELL. I think so unless the money were impounded or otherwise taken away from us. The additional funds would show up as carry-over balances.

Mr. KIRWAN. Mr. Jackson.

Mr. JACKSON. No questions.

Mr. KIRWAN. Mr. Jensen.

Mr. JENSEN. No questions.

TUCUMCARI PROJECT, NEW MEXICO

Mr. KIRWAN. The next item is the Tucumcari project, New Mexico. The allotment for 1952 is $200,000 and the estimate for 1953 is $204,000.

Pages 340 through 343 of your justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$16, 763, 374
Total obligations to June 30, 1951		15, 534, 659
Allotment, fiscal year 1952	$200, 000	
Prior year balance available	20, 304	
Total obligations, fiscal year 1952		220, 304
Allotment, fiscal year 1953	$204, 000	
Transfer to project	150, 000	
Total obligations, fiscal year 1953		354, 000
Balance to complete		654, 411

JUSTIFICATION OF ESTIMATE

Authorization.—The Tucumcari project was authorized by the act of August 2, 1937 (50 Stat. 557), as amended by the act of April 9, 1938 (52 Stat. 211). The finding of feasibility was approved by the President on November 1, 1938.

Location.—The project is located in eastern New Mexico in San Miguel and Quay Counties. Project works extend southeast from Conchas Dam to lands of the Arch Hurley Conservancy District, adjacent to, and partially surrounding the city of Tucumcari.

Description.—The purpose of the project is to provide a full water supply for the irrigation of 42,321 acres of semiarid land. Water supply for the project is obtained from Conchas Dam Reservoir, built and operated by the Corps of Engineers, located at the confluence of the Conchas and South Canadian Rivers. Water for distribution by lateral system units 1 through 7 is supplied by gravity flow from Conchas and Hudson canals.

Repayment.—The reimbursable construction cost of the project is $5,655,000 and is covered by a repayment contract with the Arch Hurley Conservancy District.

The repayment contract provides for repayment of the obligation in 40 equal annual installments to commence with the Secretary's notice of completion of construction.

Status.—Construction was begun in 1940 but was interrupted during the war years. It was resumed in 1944, and irrigation water was first delivered to a small portion of the lands in 1945. As of June 30, 1950, the construction of all irrigation facilities had been completed and irrigation water was available for the entire project acreage. Principal project activity for fiscal year 1951 was operation and maintenance of facilities during construction. Construction activity during fiscal year 1951 consisted of puddling canals and laterals, continuation of drainage investigations, and construction of ditch-rider houses. Principal project activity for fiscal year 1952 will be operation and maintenance of facilities. Construction activities will be limited to a minor extension of puddling canals and laterals, and routine well gaging and recording drainage well data. As of June 30, 1952, the project will be 94 percent complete, considering the undetermined detail of drainage construction.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes construction of drainage facilities to alleviate drainage problems which has developed in past years, continuation of additional drainage investigations, and continuation of operation and maintenance of facilities during construction.

Justification.—Development of farms comprising project lands to get all irrigable lands into efficient production to permit repayment of district obligation scheduled to begin in 1954 necessitates the continuation of operation and maintenance of irrigation facilities during construction. Continued spread of seepage areas in project lands under continued irrigation necessitates the continuation of drainage investigations to an early conclusion to provide data for drainage designs or other remedial measures. Any delay or curtailment in the program proposed will endanger the maximum productivity of project lands and the repayment ability of the district.

The total estimated cost has been reduced from $16,730,000 to $15,662,000 (estimated total obligations $16,763,374). This decrease is a result of eliminating operation and maintenance during construction as a project cost and other minor adjustments of final construction costs.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Canals	$10,711,239	$10,703,239	$8,000		
Laterals	3,708,426	3,642,941	65,485		
Drains	777,493	198,280	10,325	$162,000	$406,888
Farm unit development	267,642	267,642			
General property	197,200	235,600	−14,000	−13,000	−11,400
Total cost	15,662,000	15,047,702	69,810	149,000	395,488
Stores		51,077			−51,077
Funded operation and maintenance	205,000				205,000
Operation and maintenance during construction	479,597	401,597	55,000	15,000	8,000
Transfers, credits, and other expenditures	416,777	−40,223	170,000	190,000	97,000
Total expenditures	16,763,374	15,460,153	294,810	354,000	654,411
Unliquidated obligations		74,506	−74,506		
Total obligations	16,763,374	15,534,659	220,304	354,000	654,411
Method of financing:					
Allotment, fiscal year 1952			200,000		
Prior year balance available			20,304		
Transfer to project				150,000	
Allotments required				204,000	655,000

Mr. KIRWAN. You may explain your request.

Mr. MARKWELL. I have a statement, sir, and will answer questions.

GENERAL STATEMENT

Construction of the Tucumcari project, which includes 42,320 acres of irrigable land in northeastern New Mexico, was substantially complete on June 30, 1950. Water service has been available for the entire project acreage since that time.

A small amount of the $204,000 of construction funds requested for fiscal year 1953 will be required for continuing investigations of drainage needs, while the bulk of the requested appropriation will be used for operation and maintenance of the project. It is estimated that during the same period of time, water rentals in the amount of $190,000 will be collected from the water users and covered into the Treasury, thus largely offsetting the total operation and maintenance costs.

It is anticipated that in 1954, the Tucumcari project will be placed on a regular operation and maintenance basis, and both construction repayment and operation and maintenance charges will be assessed against the water users in accordance with their repayment contract.

PURPOSE OF REQUEST

Mr. KIRWAN. The same thing is true again, drainage?

Mr. MARKWELL. Drainage and operation and maintenance during the construction and development of the project.

Mr. KIRWAN. Is it expected that will clean up this project?

Mr. MARKWELL. No, sir; we expect the drainage problem will continue over a period of time. The estimated balance to complete is $654,000.

Mr. KIRWAN. Do you think next year, if we gave you the $400,000, would complete it?

Mr. MARKWELL. The present schedule is shown on page 344 of the justification, the control schedule. It indicates that approximately

$444,000 would be required in 1954 and approximately $311,000 in fiscal 1955.

Mr. KIRWAN. There is no way to get rid of it before 1955?

Mr. MARKWELL. I think not because of the development period and the drainage situation as it unfolds.

Mr. KIRWAN. Mr. Norrell.

REPAYMENT PROVISIONS

Mr. NORRELL. I believe you said you have entered a contract for reimbursement for $5,655,000. What has become of the balance of the total cost of this project?

Mr. MARKWELL. That will have to be written off as far as I know, because the amount of the contract was fixed by the Congress.

Mr. LINEWEAVER. By law.

Mr. MARKWELL. And the balance will be nonreimbursable.

Mr. LINEWEAVER. And the determination was made, Mr. Norrell, by this committee, I think, in 1948 or 1949 that the irrigators were only obligated under the law to return the amount stated in the authorized matter.

Mr. NORRELL. Here we are spending about $17 million, not quite that, and we are getting a reimbursable contract back for only $5,655,000.

The balance is to be paid by the taxpayers of the United States; is that right?

LAW SPECIFYING REPAYMENT PROVISIONS

Mr. LINEWEAVER. I may state there, Mr. Norrell, this was started in the 1930's as a project for the rehabilitation of a highly distressed area in New Mexico, and that that was the provision by Congress when the act was passed, I think, in 1938 or 1939, authorized in the project.

Mr. NORRELL. Will you insert at this point in the record a copy of that law you are talking about?

Mr. LINEWEAVER. Yes.

(The material referred to is as follows:)

Responsive to the House committee's request, there follows a copy of the Federal legislation governing the repayment obligation of the Arch Hurley Conservancy District, Tucumcari project. The repayment obligation of the district, under this legislation, was fully discussed in the committee's hearings on the Interior Department appropriation bill for fiscal year 1949 (see p. 880).

"AMENDMENT OF AUTHORIZATION OF ARCH HURLEY PROJECT

"That the Act entitled 'An Act to authorize the construction of a Federal reclamation project to furnish a water supply for the lands of the Arch Hurley Conservancy District in New Mexico,' approved August 2, 1937 (Public Law 241), is amended to read as follows:

"(Project to be found feasible if district can repay amount expended from reclamation fund, and if such money plus other money equals construction cost—repayment contract to be executed—landowners to sell excess acreage—all owners to contract, if land sold above appraised prices, that one-half such excess be paid United States.)—That the Secretary of the Interior is hereby authorized to construct a Federal reclamation project for the irrigation of the lands of the Arch Hurley Conservancy District in New Mexico under the Federal reclamation laws: *Provided*, That construction work is not to be initiated on said irrigation project until (a) the project shall have been found to be feasible under subsection B of section 4 of the Act of December 5, 1942 (43 Stat. 702), but the project may

be found to be financially feasible if the Secretary of the Interior finds that the amount to be expended from the reclamation fund can be repaid by the district, and further that the amount of money to be expended from the reclamation fund, plus the amount of money which has been made available from other sources (for the estimated period of construction), equals the estimated cost of construction; (b) a contract shall have been executed with an irrigation or conservation district embracing the land to be irrigated under said project, which contract shall obligate the contracting district to repay the cost of construction of said project met by expenditure of moneys from the reclamation fund in forty equal annual installments, without interest; (c) contracts shall have been made with each owner of more than one hundred and sixty irrigable acres under said project, by which he, his successors, and assigns shall be obligated to sell all of his land in excess of one hundred and sixty irrigable acres at or below prices fixed by the Secretary of the Interior and within the time to be fixed by said Secretary, no water to be furnished to the land of any such large landowner refusing or failing to execute such contract; and (d) contracts shall have been made with all owners of lands to be irrigated under the project by which they will agree that if their land is sold at prices above the appraised value thereof, approved by said Secretary, one-half of such excess shall be paid to the United States to be applied in the inverse order of the due dates upon the construction charge installments coming due thereafter from the owners of said land."

Approved April 9, 1938.

Mr. KIRWAN. Mr. Jensen.

REASON FOR DRAINAGE PROBLEMS

Mr. JENSEN. It is difficult for me to understand why you have the drainage problem there that you indicate. It is in a very dry area. You have your water running through canals in the area. As I say, there is little rainfall there.

How you can have a serious drainage problem is beyond me. Just what are the facts?

Mr. MARKWELL. The annual rainfall has little effect on the drainage and seepage problems confronting us on irrigation projects. The nature of the soil and the slope of the land are major factors.

If the soil retains the water and does not gradually seep away, then there is a drainage problem. If the water is not used or used by transpiration through plants or seeps down in through the ground for a return flow the area becomes saline and the land goes out of use.

Rainfall is not usually a major factor in irrigation drainage problems in arid areas; the character of the soil and the topography have much more effect.

PROJECT NOT TRANSFERRED TO IRRIGATION DISTRICT

Mr. JENSEN. Mr. Chairman, it was in 1948 when this committee determined after studying the original contract between the water users of the Tucumcari district and the district that we determined the contract was airtight and that it was Uncle Sam's responsibility to complete this job for the amount of dollars which the contract called for.

Since that time we have spent a number of hundreds of thousands of dollars in the same manner which is proposed in this $204,000, which is for drainage.

I am wondering how long this thing is going on. I am satisfied that those water users appreciate the fact that the Government, the taxpayers of America, are spending a lot of money down there which in all fairness to the water users should be taken care of by them,

especially since Uncle Sam was good enough to say that they owed no more on the original contract.

So I respectfully suggest that you make an attempt to turn that project over to the irrigation district at the earliest possible time this year, in fiscal 1953, which will not make it necessary for another appropriation for this purpose.

Mr. LINEWEAVER. May I comment on that, Mr. Jensen? We made an attempt to turn the project over to this district in 1951. The water users of the district insisted that we should carry on as the contract provided as they were not ready to take over operation and maintenance. Now we expect to do that in 1954, and do exactly what you suggest.

Mr. JENSEN. Mr. Lineweaver, I went all-out for those water users when I was chairman of this committee. Now I am going to recommend to the chairman of this committee and to the rest of the committee that you do sign a contract that will relieve the Government of any responsibility after 1953, and that we let them know that this 1953 appropriation is all they are going to get.

There is a limit to all things. I want to be perfectly fair with those people, but as far as I am concerned this is the last appropriation that I will be for.

I hope the committee will go along with me. We just cannot keep on dragging these things along, after we have been very kind to those people and then find they are not ready to take over this small responsibility.

Mr. LINEWEAVER. As always, Mr. Jensen, we will endeavor to carry out the instructions of this committee. In this case, we will endeavor to work it out not only with this project but any other project in the category that has been commented on here this morning.

Mr. JENSEN. I think, Mr. Chairman, this committee is going to have to say not only regarding this project but many other projects that have just been hanging fire. It has been 5 years ago when the Bureau of Reclamation told us if we appropriate a certain amount 12 or 15 projects would be completed.

We appropriated every time and most of them are still in this list of requests today. There is a limit to all things, gentlemen. I certainly feel this committee is going to have to take a very definite stand and say, "This is the last. Clean it up and get if off the books." and say to the water users: "It is your responsibility from now on."

This thing is just dragging on and on until it is getting silly. That is all, Mr. Chairman.

RIO GRANDE PROJECT, NEW MEXICO-TEXAS

Mr. KIRWAN. The next item is the "Rio Grande project, New Mexico-Texas." The amount allotted to this project for 1952 is $1,288,000. The estimate for 1953 is $150,000.

Please insert pages 345 through 348 of your justification in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$15, 214, 919
Total obligations to June 30, 1951		13, 773, 137
Allotment, fiscal year 1952	$1, 288, 000	
Prior year balance available	3, 782	
Balance available in subsequent year	−11, 118	
Total obligations, fiscal year 1952		1, 280, 664
Allotment, fiscal year 1953	$150, 000	
Prior year balance available	11, 118	
Total obligations, fiscal year 1953		161, 118

JUSTIFICATION OF ESTIMATE

Authorization.—The Rio Grande project was authorized by the Secretary of the Interior, December 2, 1905.

Location.—The project is located in central and south-central New Mexico. Project works extend from Albuquerque, N. Mex., on the north to the city of Las Cruces, N. Mex., on the south, and from Silver City, N. Mex., on the west to the town of Hollywood, N. Mex., on the east.

Description.—The primary purpose of the Rio Grande project upon its initial authorization was to provide a full supply of irrigation water to the irrigable portion of the valley of the Rio Grande lying south of the Percha diversion dam and north of the Hudspeth County line in the State of Texas. The power system consists of one power plant and switchyard at Elephant Butte Dam, and transmission lines and substations serving the towns of Hot Springs, Deming, Central, Silver City, Las Cruces, Alamogordo, Hollywood, Socorro, Belen, Willard, and Albuquerque, N. Mex., and El Paso, Tex., and the military establishments at White Sands and Holloman Air Base, N. Mex. The power system has a designed capacity of 24,300 kilowatts.

Repayment.—Repayment of construction costs of the power system of the Rio Grade project is made from revenues obtained from the sale of electric energy.

Status.—Construction of the Elephant Butte power system was begun in 1938, and has continued annually since that date, with the exception of the years during the late war. As of June 30, 1952, the project will be 99 percent complete. Construction will be accomplished upon all items except the Elephant Butte switchyard, the Dona Ana and Willard substations, the Belen-Willard transmission line, and the substation modifications and improvements.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 to complete the project will consist of final contract payments and installation costs on the Belen-Willard transmission line and the Willard substation and force account installation of the Elephant Butte switchyard additions, Dona Ana substation additions, and substation modifications and improvements. Force account installation of these facilities is anticipated due to inability of obtaining firm bids on this minor work at places far removed from contractors' headquarters.

Justification.—The fiscal year 1953 appropriation is required to complete project works which are presently under construction. The total estimated cost has been increased from $14,800,224 to $15,198,919 (anticipated total obligations $15,214,919) as a result of actual bid prices, changes in design, increased project labor costs, freight allowances, and contract overruns.

Program item (1)	Estimated total (2)	Total to June 30, 1951 (3)	Program current year 1952 (4)	Program budget, year 1953 (5)	Balance to complete (6)
Power development:					
Elephant Butte Dam and Reservoir	$5,569,813	$5,569,813			
Caballo Dam and Reservoir	2,285,438	2,285,438			
Elephant Butte power plant	1,373,693	1,373,693			
Elephant Butte switchyard	323,856	323,856			
Elephant Butte-Las Cruces line and substation	238,746	233,746	$5,000		
Las Cruces-Alamogordo line and substation	1,102,987	1,071,859	31,128		
Elephant Butte-Deming central lines and substations	720,728	701,674	19,054		
Elephant Butte-Socorro line and substation	761,381	753,892	7,489		
Elephant Butte-Hot Springs line and substation	29,843	29,843			
General property, Elephant Butte and Caballo	318,224	318,224			
Construction program:					
Motor-generator and Diesel generator sets	14,100		14,100		
Communication and control equipment		7,662	−7,662		
Elephant Butte switchyard addition	93,180	1,322	83,858	$8,000	
Dona Ana substation addition	62,874	7,692	49,850	5,332	
Hollywood substation	116,100	104,970	11,130		
Albuquerque substation	371,970	37,000	334,970		
Willard substation	279,718	11,912	161,806	106,000	
Socorro-Albuquerque 115-kilovolt transmission line	770,654	252,348	518,306		
Belen-Willard 115-kilovolt transmission line	545,995	42,420	403,575	100,000	
Substation modifications and improvements	129,822		75,504	54,318	
Belen substation	89,797	6,692	83,105		
Total cost	15,198,919	13,134,056	1,791,213	273,650	
Construction facilities		27,400	−27,400		
Stores		81,218	−81,218		
Transfers, credits, and other expenditures	16,000		16,000		
Total expenditures	15,214,919	13,242,674	1,698,595	273,650	
Unliquidated obligations		530,463	−417,931	−112,532	
Total obligations	15,214,919	13,773,137	1,280,664	161,118	
Method of financing:					
Allotment, fiscal year 1952			1,288,000		
Prior-year balance available			3,782	11,118	
Balance available in subsequent year			−11,118		
Allotment required				150,000	

Mr. KIRWAN. Will you explain the estimate?

Mr. MCPHAIL. I have a statement, Mr. Chairman, and will be glad to answer questions.

GENERAL STATEMENT

The Rio Grande project, located in central and south central New Mexico, supplies irrigation water to the irrigable portion of the Rio Grande Valley lying south of the Percha diversion dam in New Mexico, about 2 miles below Caballo Dam, and north of the Hudspeth County line in the State of Texas. Main storage is provided at Elephant Butte Reservoir while irrigation regulation is provided by the Caballo Dam Reservoir which is about 25 miles downstream from Elephant Butte Dam. The power system consists of the 24,300-kilowatt hydroelectric-power plant and switchyard at the Elephant Butte Dam and the transmission lines and substations serving the towns of Hot Springs, Deming, Central, Silver City, Las Cruces,

Alamogordo, Hollywood, Socorro, Belen, Willard, and Albuquerque, N. Mex., and El Paso, Tex., and the military establishments of White Sands and Holloman Air Base, N. Mex. During fiscal year 1953 the Hollywood and Albuquerque substations at the eastern and northern terminals, respectively, of the present transmission system will be completed. In addition, the Belen-Willard transmission tap line will also be completed in fiscal year 1953.

COMPLETION IN 1553

Mr. KIRWAN. The work in 1953 is to complete the project?
Mr. MCPHAIL. Yes, sir. It is expected to complete it.
Mr. KIRWAN. And we can happily say that this is the last year of the Rio Grande project?
Mr. MCPHAIL. As far as we can see it is.
Mr. KIRWAN. Mr. Norrell.

REPAYMENT

Mr. NORRELL. This is to be repaid entirely through the sale of power?
Mr. MCPHAIL. That is correct.
Mr. NORRELL. Is there any land to be irrigated at all?
Mr. MCPHAIL. All the work that is going on now is the finishing up of the power system.
Mr. NORRELL. How much of this cost has been charged to power and repayable?
Mr. MCPHAIL. There is something over $9 million which has been charged to power and repayable, which includes a substantial part also of the Elephant Butte and Caballo Dams and Reservoirs.
Mr. NORRELL. Where did the balance of $6 million plus go?
Mr. MCPHAIL. There is an allocation by law of $1,510,654 to flood control. The balance of the money is in connection with the irrigation project on the Rio Grande and repaid by water users.
Mr. NORRELL. It has to be repaid by water users?
Mr. LINEWEAVER. Yes, sir.
Mr. NORRELL. You have contracts on that?
Mr. LINEWEAVER. Yes, sir.
Mr. KIRWAN. Mr. Jackson.
Mr. JACKSON. No questions.
Mr. KIRWAN. Mr. Jensen.
Mr. JENSEN. No questions.

W. C. AUSTIN PROJECT, OKLAHOMA

Mr. KIRWAN. The next item is the W. C. Austin project, Oklahoma. The allotment for 1952 is $135,000 and the estimate for 1953 is $30,000.

Pages 351 through 353 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations	$12,413,748
Total obligations to June 30, 1951	11,865,164
Allotment, fiscal year 1952	135,000
Prior year balance available	43,740
Total obligations, fiscal year 1952	178,740
Allotment, fiscal year 1953	30,000
Total obligations, fiscal year 1953	30,000
Balance to complete	339,844

JUSTIFICATION OF ESTIMATE

Authorization.—The finding of feasibility was approved by the President on February 13, 1941. The project was authorized in the Rivers and Harbors Act of June 28, 1938 (52 Stat. 1215, 1219).

Location.—The W. C. Austin multiple-purpose project is located in southwestern Oklahoma and includes portions of Jackson, Greer, and Kiowa Counties.

Description.—It will provide irrigation, flood control, municipal water supply, fish and wildlife conservation benefits, and recreational facilities. The project scheme of development includes a 145,026 acre-foot reservoir on the North Fork of Red River for irrigation storage and flood control and 270 miles of canals and laterals to serve approximately 47,810 acres of land in the semiarid area within a 15-mile radius of Altus, Okla. A 3½-mile pressure pipeline from the canal system will furnish a municipal water supply to the city of Altus.

Repayment.—A contract has been executed with the Lugert-Altus irrigation district to repay, over a period of 40 years, construction costs in the amount of $3,280,000. This sum includes a contract in the sum of $1,080,000 with the city of Altus, Okla., covering a municipal water supply and which is underwritten by by the irrigation district.

Status.—Construction work was begun in 1940. As of June 30, 1952, the project will be approximately 97 percent complete. Remaining work to be done consists of continued drainage investigations and studies and construction of drain channels and wasteways as necessary. Construction of the Altus Dam and Reservoir, the distribution system, and approximately 60 percent of the drains and wasteways has been completed.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes continuation of drainage investigations over the entire project and observation of the results of several years of irrigation on ground-water levels.

Justification.—Investigation leading to an efficient drainage system should be continued to assure maximum productivity of project lands and protection of the Government's and water user's investment. Elimination of the work would lead to waterlogging of irrigated lands, reduction of crop returns, and eventual removal of the affected areas from cultivation.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Altus Reservoir and Dam	$5,058,697	$5,055,197	$3,500		
Canals and conduits	3,418,191	3,410,891	7,300		
Laterals	2,974,186	2,935,086	39,100		
Drains	934,601	447,816	116,941	$30,000	$339,844
Farm unit development	115,534	114,534	1,000		
General property	151,411	103,411	48,000		
Total cost	12,652,620	12,066,935	215,841	30,000	339,844
Operation and Maintenance during construction	191,414	191,414			
Funded operation and maintenance	182,854	182,854			
Stores		34,654	−2,000		
Transfers, credits, and other expenditures	−613,140	−645,794			
Total expenditures	12,413,748	11,830,063	213,841	30,000	339,844
Unliquidated obligations		+35,101	−35,101		
Total obligations	12,413,748	11,865,164	178,740	30,000	339,844
Method of financing:					
Allotment, fiscal year 1952			135,000		
Prior year balance available			43,740		
Allotments required				30,000	340,000

Mr. KIRWAN. In connection with the W. C. Austin project we see that $339,844 would clean up the job, is that right?

Mr. MARKWELL. Yes, sir. I have a statement on that.

GENERAL STATEMENT

In addition to providing flood-control benefits and a municipal water supply to the city of Altus, Okla., this multiple-purpose project has stabilized through irrigation the agricultural economy of an area which in years before had been subject to severe fluctuations by intermittent periods of drought.

The project construction will be approximately 97 percent complete on June 30, 1952, with completion of the drainage system alone remaining. Over 47,800 acres of highly productive lands are included in the project. A small appropriation of $30,000, is requested for fiscal year 1953 for continuation of drainage investigations. Proper drainage must be provided promptly as needs therefor develop, in order to assure continued maximum productivity of the project lands, and to protect the Federal investment.

USE OF 1953 FUNDS

I would like to point out the amount which is required this year is for some drainage work but principally for investigations.

The drainage observations and wells on this relatively new project are necessary as it is quite new in its operation. We estimate that the balance which will be required over a period ending, we estimate, in 1956 will be about $400,000 to complete it.

Mr. KIRWAN. Are there any questions, Mr. Norrell?

Mr. NORRELL. You say the investigation is looking toward a new project in this area?

Mr. MARKWELL. No, sir; these are drainage investigations, studying the water to determine where drainage is needed, will be necessary.

Mr. NORRELL. In other words, if this is allowed we would not have it next year; it would be all completed?

Mr. MARKWELL. No, sir, the drainage will be necessary. We know that otherwise many areas of the project would go out of cultivation.

Mr. NORRELL. That is all.

Mr. KIRWAN. Mr. Jackson.

Mr. JACKSON. What did you say the balance was to complete it? It says $339,844 here.

Mr. MARKWELL. I said approximately $400,000.

Mr. KIRWAN. Mr. Jensen.

Mr. JENSEN. No questions.

KLAMATH PROJECT, OREGON-CALIFORNIA

Mr. KIRWAN. The next is the Klamath project, Oregon-California. The allotment for this project is $400,000 in 1952, and the estimate for 1953 is $368,000.

Please insert in the record at this point pages 355 through 358 of your justification.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations	$18, 613, 475
Total obligations to June 30, 1951	13, 760, 111
Allotment, fiscal year 1952	400, 000
Prior-year balance available	175, 947
Transfer from project	−64, 174
Total obligations, fiscal year 1952	511, 773
Allotment, fiscal year 1953	368, 000
Total obligations, fiscal year 1953	368, 000
Balance to complete	3, 973, 591

JUSTIFICATION OF ESTIMATE

Authorization.—The Klamath project was authorized by the Secretary of the Interior on May 15, 1905.

Location.—The project is located in central-southern Oregon in Klamath County and central-northern California in Modoc and Siskiyou Counties.

Description.—The project works control the flow of Klamath River and protect certain lands from flooding by the river. Also, Clear Lake Dam and Reservoir on Lost River and Gerber Dam and Reservoir on Miller Creek, store irrigation and floodwaters for the benefit of lands in the Lost River Valley and in the reclaimed portion of the former Tule Lake, which has been homesteaded through the activities of the Bureau. The present active project includes the main and Tule Lake divisions for which full irrigation supplies are available to 85,429 acres, and 22,050 acres of lease lands under Bureau of Reclamation control and 7,113 acres of farm lands administered by the Fish and Wildlife Service. Other lands totaling 94,917 acres are irrigated by the Warren Act and other special contracts.

Repayment.—Construction work performed for the main division has been covered by repayment contracts. The Tule Lake division, part 1, was all entered as public land and the entrymen are now in the process of organizing an irrigation district and negotating a repayment contract for the construction costs. Cost of construction of the Modoc unit which is comprised of the entered Coppock Bay lands (Tule Lake division, pt. 2) and the unentered public lands (normally leased) of the Tule Lake division, part 2, and of the area bordering lower Klamath Lake will be repaid from payments made by the water users under a contract currently being negotiated, and from lease revenues in accordance with the Appropriation Act of June 18, 1940. The Warren Act districts have contracted for the repayment of their proportionate share of all construction costs.

Status.—Construction started in 1906. Recent construction has involved further flood protection for lands irrigated, and the irrigation on a more concentrated basis of certain lease lands. A definite plan report has been written on a tract of almost 6,000 acres which, when approved, will bring this amount of land under homestead entry as part of the project. As of the end of the current fiscal year, the contract for the improvement of the lower Lost River Channel, the improvement and enlargement of the dike, and the work on pumping plants 1, 2, 3, 4, and 5 will be close to completion. The contract for the channel enlargement on Lost River in upper Langell Valley will have been let, and construction under way. Construction of the lateral and drainage structures in the N-canal area, second extension, will be completed, and the two pumping plants, R and S, will be under construction.

Work proposed, fiscal year 1953.—The construction of lower Lost River channel improvement, the north main dike, and the pump outlet structures at plants 1, 2, 3, 4, and 5 will all be carried to conclusion early in the fiscal year. Pumping plants R and S will be completed early in the fiscal year. The channel improvement of Lost River in upper Langell Valley will be completed.

Justification.—The lands which have been entered in the Tule Lake division since 1947 have not had full flood protection. The construction of the lower Lost River channel and the Lost River channel in upper Langell Valley are further steps in the development of protective works and this work should be completed as rapidly as possible. Other steps not yet fully defined will be required to complete the flood protection which should be provided for lands which might be flooded by Lost River.

The total estimated cost of the project has been increased from $18,395,092 to $18,512,614 (anticipated total obligation $18,613,475). This adjustment of the project cost estimate is due to more accurate determination of actual prior year costs and the addition of the Klamath Straits homestead opening work to the project program, the actual work being programed in fiscal year 1954 and following years.

Program item (1)	Estimated total (2)	Total to June 30, 1951 (3)	Program-current year 1952 (4)	Program-budget year 1953 (5)	Balance to complete (6)
Construction program:					
Reservoirs and dams	$4,711,425	$778,425	$15,000		$3,918,000
Pumping plants	1,936,653	1,632,768	177,447	$68,500	57,938
Canals, laterals, and drains	8,671,877	8,013,582	161,295		497,000
Farm units	285,986	203,253	5,733		77,000
Channels, levees, and floodworks	2,546,641	1,628,141	464,594	306,906	147,000
General property	360,032	360,032			
Total cost	18,512,614	12,616,201	824,069	375,406	4,696,938
Construction facilities		140,846	−50,000	−40,000	−50,846
Stores		75,987	−10,000	−20,000	−45,987
Project investigations		418,402	43,657	39,767	−501,826
Operation and maintenance during construction	100,861	100,861			
Transfers, credits and other expenditures		51,824	60,037	12,827	−124,688
Total expenditures	18,613,475	13,404,121	867,763	368,000	3,973,591
Unliquidated obligations		355,990	−355,990		
Total obligations	18,613,475	13,760,111	511,773	368,000	3,973,591
Method of financing:					
Allotment, fiscal year 1952			400,000		
Prior year balance available			175,947		
Transfer from project			−64,174		
Allotments required				368,000	3,973,600

Mr. KIRWAN. Will you explain this estimate?

Mr. LINEWEAVER. I will make a statement, and will be glad to answer any questions.

GENERAL STATEMENT

The Klamath project, on which construction was started in 1906, will eventually serve 231,800 acres of land in northern California and southern Oregon. Approximately 192,000 acres of that total are now under irrigation. Recent construction has been for the principal purpose of providing further flood protection for lands already irrigated and as a prerequisite to the extension of lateral systems and the settlement of additional areas of the project.

The total amount of $268,000 requested for fiscal year 1953 will be used for carrying to completion work now in progress on construction of the Lower Lost River channel improvement, the channel improvement of Lost River in upper Langell Valley, the north main dike, pumping plant R and S, and the pump outlet structures at plants 1, 2, 3, 4, and 5. This work is essential for continued safe operations on some of the project lands, and should be completed as rapidly as possible.

COMPLETION DEFERRED

Mr. KIRWAN. Are you going to clean this project up this year?

Mr. LINEWEAVER. No, sir. The problem there is the bringing under irrigation additional public lands for veteran settlement and adjustment of wildlife controversy. Because of the emergency

Korean war situation the opening of these lands has been deferred. Until that situation is cleared up we will not be able to complete the Klamath project, where there is a considerable area of public lands yet to be opened for settlement.

Mr. KIRWAN. Any questions, Mr. Norrell?

Mr. NORRELL. No.

Mr. KIRWAN. Mr. Jackson.

Mr. JACKSON. No.

Mr. KIRWAN. Mr. Jensen.

PROJECTS WITH MINOR CARRY-OVER ITEMS

Mr. JENSEN. I recommend that the Bureau furnish a list of projects now in the category of just needing drainage, and small things of that nature, and their recommendation as to how they can all be cleaned up not later than fiscal 1954.

Then we can get these things grouped together and see where we are on these projects which are hanging fire and not being cleaned up.

Mr. KIRWAN. Will you prepare a statement?

Mr. LINEWEAVER. We will be glad to do that, Mr. Chairman.

(The information requested is as follows:)

The following tabulation lists projects and units on which the only expenditures now programed after fiscal year 1954 are for drainage or minor miscellaneous clean-up operations. The fund requirements shown for this type of activity are estimated on the basis of present information and costs. Development of additional information as to project requirements or changes in costs indexes would necessarily revise the estimated future year fund requirements.

Drains or miscellaneous small project items precluding project completion in fiscal year 1954 or thereafter

Project and item	Amount programed, fiscal year 1954 [1]	Balance to complete [1]	Project and item	Amount programed, fiscal year 1954 [1]	Balance to complete [1]
All-American Canal:			Tucumcari:		
Coachella Division:			Drains	200,000	206,888
Drainage	15,200	92,414	Funded O. and M.	197,000	105,000
Farm unit development	17,200	----------	O. and M. during construction	8,000	----------
Imperial division: O. and M. during construction, Coachella canal (station 0 to 2603	35,000	35,000	W. C. Austin: Drains	139,000	200,844
Kern River: Project investigations	2,500	----------	Shoshone:		
Buffalo Rapids, second division:			Willwood division: Drains	5,000	----------
Shirley and Terry unit:			Heart Mountain division:		
Drains	104,000	133,942	Drains	100,000	297,550
Structures and improvements	----------	1,602	Missouri River Basin:		
Fallon unit: Drains	46,000	71,309	Boysen unit: Boysen Dam and Reservoir	49,160	----------
Sun River, Greenfields division:			Angostura unit:		
Dams and reservoirs	19,100	----------	Farm unit development	4,000	16,220
Drains	34,000	29,616	Recreational facilities	66,584	1,000
			Savage unit: Drains	26,000	----------

[1] On cost basis.

PROVO RIVER PROJECT, UTAH

Mr. KIRWAN. We will move on to the Provo River project, Utah. The amount allotted to this project in 1952 is $2,748,000. The estimate for 1953 is $2,310,000.

Pages 360 through 365 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$33,777,951
Total obligations to June 30, 1951		26,934,679
Allotment, fiscal year 1952	$2,748,000	
Prior year balance available	38,072	
Total obligations, fiscal year 1952		2,786,072
Allotment, fiscal year 1953	2,310,000	
Total obligations, fiscal year 1953		2,310,000
Balance to complete		1,747,200

JUSTIFICATION OF ESTIMATE

Authorization.—The Provo River project was authorized under the provision of the Fact Finder's Act of December 5, 1924 (43 Stat. 701), and approved by the President November 16, 1935. The Deer Creek power plant and appurtenant facilities were authorized under the provisions of section 9 (a) of the Reclamation Act of 1939 (53 Stat. 1187). By letter to the President dated August 20, 1951, the Secretary of the Interior authorized construction of the Deer Creek power plant.

Location.—The project is located in north-central Utah in Summit, Wasatch, Utah, and Salt Lake Counties. Project works extend from the Duchesne tunnel—about 20 miles east of Kamas, Utah—southwesterly to Provo, Utah, and thence northwesterly to Salt Lake City, Utah.

Description.—The project will conserve water resources of Weber, Provo, and Duchesne Rivers and will utilize the water for supplemental irrigation of 56,609 acres of lands now inadequately served from existing sources, and in addition will provide badly needed domestic and industrial water supplies for the metropolitan districts of Salt Lake City, Provo, Orem, Pleasant Grove, American Fork, and Lehi. Facilities of the project include the Deer Creek Dam on Provo River, the Weber-Provo diversion canal, the Duchesne tunnel and diversion dam, enlargement and betterment of the Provo River Channel from Duchesne tunnel to Deer Creek Dam, Murdock diversion dam, Provo Reservoir canal including south lateral of the Utah Lake Distributing Co. canal, Jordan Narrows pumping plant, Utah Lake pumping plant, and the Salt Lake aqueduct, including the terminal reservoir. The power system includes the Deer Creek power plant, Deer Creek substation, and about 3,000 feet of transmission line. Installed capacity will be 5,000 kilowatts. Included also will be three residences for operating personnel. Initially, as a war measure and in view of the incomplete construction of the aqueduct precluding the use of project water by the Salt Lake City metropolitan area, a contract was executed between the Salt Lake metropolitan water district and the Geneva Steel Co. for delivery of project water to the steel plant. This was a temporary contract for water deliveries until such a time as the aqueduct is in operation and the entire water supply is required by the metropolitan area. The Geneva Steel plant has no right for permanent participation of any sort in the Provo project and no facilities have been constructed or are contemplated to make project water directly available to the steel plant.

Repayment.—Repayment of construction costs for project works is covered by repayment contracts as follows:

Deer Creek division: The repayment contract dated June 27, 1936, between the United States and the Provo River Water Users' Association providing for the repayment of construction costs of the Deer Creek division was executed by both parties in 1936. Two supplemental contracts dated July 3, 1937, and December 20, 1946, respectively, also have been executed in amending the repayment contract. In addition to the above, the act of March 29, 1948 (62 Stat. 92), makes possible repayment of the construction costs which are in excess of the maximum liability under the above contracts by renting project water to the water users and crediting the funds thus received to the construction costs. Cost of the Deer Creek power plant and appurtenant facilities will be repaid from the sale of power, and in addition within a 50-year period will make available about $1,623,000 for repayment of costs of the Deer Creek division as provided in article 38 of the repayment contract mentioned above.

Aqueduct division: A contract dated November 16, 1938, amended by supplemental repayment contract dated December 16, 1946, between the United States and the metropolitan water district provides for the repayment of construction cost of the Salt Lake aqueduct. In addition to the above, the act of March 29, 1948 (62 Stat. 92) makes possible the repayment of construction costs which are in excess of the maximum liability under the above contract by renting project water to the water users and crediting the funds thus received to the construction costs.

Status.—Construction began July 16, 1938. As of June 30, 1952, the project will be approximately 88 percent complete. Construction will continue during fiscal year 1952 on the Duchesne tunnel and diversion dam, and the Provo River Channel revision. All construction work on the aqueduct division has been completed except for testing of the terminal reservoir which will continue for some time. Preconstruction surveys will be completed for the Utah Lake pumping plant and for the remaining reaches of the Provo River Channel.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 includes completion of Duchesne tunnel and continuation of Provo River Channel revision.

Justification.—The necessity for irrigation, domestic, and industrial water in this area which existed at the time of authorization has become increasingly acute. Increases in wartime industry brought a large influx of people to the area. Peacetime conversion of industry and new industries maintained that population. The present international situation with its resulting concentration on preparedness is making added demands for industrial water, culinary water for the increasing population, and supplemental irrigation water for the production of food and fiber so essential to the defense effort. Any delay in the program proposed will necessarily retard the achievement of the above goals and will result in increased project costs due to increases in cost of material and labor.

The total estimated cost has been increased from $30,960,000 to $33,960,171, exclusive of O. and M. during construction (anticipated total obligations $33,777,961, including O. and M. during construction). This increase is due to the addition of the Deer Creek power plant, substation, and transmission line and three residences for the housing of operating personnel. Although the ultimate development of the Provo project contemplated the Deer Creek power plant and the design and construction of the Deer Creek Dam included facilities for its future construction, the cost of this power plant was not included in the total estimated cost of the project as its construction was dependent entirely upon the local need for electrical power. There is now an urgent need in the area for additional power. The Deer Creek power plant and appurtenant works will permit the full feasible operation of the project as planned, and will replace energy and capacity lost by diversion of Weber Basin water to the Provo River project. The proposed plant would generate an average of 25,000,000 kilowatt-hours annually under present conditions. The cost of the power plant has therefore been included in the project total estimated cost and its construction should be undertaken as soon as possible.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Deer Creek division:					
Deer Creek Dam and appurtenant works	$4,039,927	$4,029,927		$10,000	
Provo River channel revision	1,229,000	476,243	$123,757	436,800	$192,200
Weber-Provo diversion canal	1,100,576	1,090,576	10,000		
Duchesne tunnel	9,500,000	5,084,576	2,543,997	1,871,427	
Provo Reservoir canal diversion dam	231,700	231,562	138		
Utah Lake pumping plant	135,000				135,000
Provo Reservoir canal	3,433,355	3,428,482	4,873		
Deer Creek power plant	1,030,000				1,030,000
Deer Creek substation	367,000				367,000
Deer Creek transmission line	3,000				3,000
General property	38,000				38,000
Total Deer Creek division	21,107,558	14,341,366	2,682,765	2,318,227	1,765,200
Aqueduct division: Salt Lake aqueduct	12,852,613	12,077,316	775,297		
Total cost	33,960,171	26,418,682	3,458,062	2,318,227	1,765,200
Construction facilities		58,340	−17,013	−2,787	−38,540
Stores		52,494	−7,500		−44,994
Project investigations		49,681	22,481	−5,440	−66,722
O. and M. during construction, Deer Creek division	110,850	101,099	9,751		
O. and M. during construction, Aqueduct division	8,700	7,757	943		
Transfers, credits and other expenditures	−301,770	−404,835	−29,191		132,256
Total expenditures	33,777,951	26,283,218	3,437,533	2,310,000	1,747,200
Unliquidated obligations		651,461	−651,461		
Total obligations	33,777,951	26,934,679	2,786,072	2,310,000	1,747,200
Method of financing:					
Allotment, fiscal year 1952 (construction funds)			2,748,000		
Allotment, fiscal year 1952 (general investigation funds)					
Prior year balance available			38,072		
Allotments required				2,310,000	1,747,200

Mr. KIRWAN. You may explain this request.

Mr. MARKWELL. I have a statement, and will be glad to answer questions.

GENERAL STATEMENT

Construction on the Provo River project is progressing very satisfactorily, being about 80 percent complete last June 30. On December 11, 1951, construction crews "holed through" the excavation on the 6-mile Duchesne tunnel. This will carry some 30,000 acre-feet of spring runoff from the North Fork of the Duchesne River into the Provo River above the Deer Creek Reservoir. The work is ahead of schedule and it is believed that completion of the tunnel lining, diversion dam, and the other related work will be accomplished by late fall. The work on the terminal reservoir of the aqueduct division is now being completed. There remains some work on the Provo River Channel revision below Duchesne tunnel to handle the diverted water, the majority of which is scheduled in fiscal 1953. We believe that we are making excellent progress on this project which, when completed, will serve to assure irrigation water to 56,609 acres of land as well as domestic and industrial water to this area which has become increasingly industrialized.

The Salt Lake metropolitan district has been supplying the Geneva steel plant under a temporary contract with about 3,000 acre-feet per

year of water until they have completed development of their own supply, or until the capacity is needed by the district. The project was not planned to meet such requirement and the steel plant has no right to permanent participation in the water supply. However, industrialization is increasing population in the area and generates the requirement for an assured irrigation and domestic water supply for the production of food and fiber essential to the national defense effort.

With the project at this stage of construction there remains for completion the installation of the power plant at Deer Creek Dam, related power features and the development of a pumping plant on the Utah Lake division, now scheduled for fiscal year 1954.

WATER FOR GENEVA STEEL PLANT

Mr. KIRWAN. The Geneva steel plant is getting water out of this metropolitan water district, is it not?

Mr. MARKWELL. It has a temporary contract for about 3,000 acre-feet of water per year which they are now receiving but for which they have no permanent right.

It is our understanding that the steel plant is making its own arrangements for water. In the meantime, it receives a temporary supply. They have no permanent right to any water from this project.

Mr. KIRWAN. How are they making their own arrangements for water?

Mr. LINEWEAVER. Drilling wells.

Mr. KIRWAN. That is one of our troubles in the Department. We have now Weber River. They claim out there now that the Government, with its military installations, has drilled so many wells that much of the State is in jeopardy, and now the steel plant comes along and it is also going to drill wells.

Mr. LINEWEAVER. The steel plant has been drilling wells under its program for several years. They are putting down additional wells now. Our understanding is that they will be in a position to secure all the water that they need for the steel plant from these wells.

We are told by the metropolitan water district that the steel plant's supply of water from the Provo River project will be cut off when the city needs it, and the steel plant is proceeding to get its water from the wells.

Mr. KIRWAN. But the question I am asking is this: How are they going to get the water from the wells when they are coming in now and drilling along Weber River? The military installation is jeopardizing the situation now. They are afraid of the salt water coming through.

Mr. LINEWEAVER. It is not the same area.

Mr. KIRWAN. It is the same State. The same water is in that table.

Mr. LINEWEAVER. I cannot answer that. I will try to get the information.

Mr. KIRWAN. I am not holding you responsible for anything like that. We had the Geological Survey yesterday and the day before. They claimed that they tell industry and utilities whether they can locate a plant there or whether there is enough water or not.

How in the world did they build that $200 million steel plant out on the desert? Who recommended that?

Mr. LINEWEAVER. I am not advised.

Mr. KIRWAN. It must have been recommended by somebody in the Department.

Mr. LINEWEAVER. My recollection is that the Department of the Interior had nothing to do with the location of the steel plant.

Mr. KIRWAN. Do they not ask the Geological Survey about the water?

Mr. MARKWELL. They do now.

Mr. KIRWAN. Do you know how that was authorized or how it was constructed, who ordered the construction of that steel plant?

Mr. BEASLEY. I will be glad to find out if the Survey was requested to furnish information on the water supply.

Mr. KIRWAN. And find out how it came to be built there. They took $200,000,000 worth of steel which was very necessary during the Second World War to do that and they hardly produced a ton of steel during the war out of this huge steel plant.

Then they sold the thing after the war for $20 million to the United States Steel.

What I would like to know is if you can furnish for the record who was the one that insisted on building that steel plant there where there was no water.

Mr. BEASLEY. It is my recollection that Defense Plant Corporation built the steel plant.

Mr. KIRWAN. But find out who was the head of the Defense Plant, and let us see how much ability and brains he had to cause him to build it on a desert where there is no water except the water that you are trying to furnish for a city.

I again say that after the war was over they took this $200 million worth of steel plant constructed with steel that could have been used to advantage during the war and sold it for $20 million. And here we are getting ready for the Weber Basin project. The story in back of that is this:

The wells are being built so rapidly for the military installation there that it is feared the Great Salt Lake will break through. Now we are drilling wells for a steel plant.

Let me show you what that steel plant will do or has done. In my district we have what is known as a copper well put in there by the Government, and rightly so, during the last war. In course of construction, they drilled wells for the water supply rather than put in a pipeline to the river.

The town there of maybe 2,000 or 3,000 people discovered one morning that it had no water supply. All of the wells went dry overnight. Every well in the neighborhood was drained off, and water had to be rushed in by truck.

That is what we are doing in the Salt Lake area. It is the same as what happened in California, and we had to put the Central Valley project there. So much water from under the surface was used to irrigate the land that salt water began to be pumped. Now they are going to pump salt back of the Weber River project. They are going to pump salt out of that lake all over the State.

That is the story back of it. Unless they get that Weber basin project constructed, and no money is provided for it in the budget, they

will be pumping salt water in Utah. Somewhere along the line somebody pulled a boner.

Mr. NORRELL. Somebody sure did.

Mr. KIRWAN. I do not want to hear of that steel plant out there usurping the water that they are trying to get for the city of Salt Lake. It is built on the banks of that Provo irrigation ditch, or river, is it not?

Mr. MARKWELL. Yes, sir, it is on the banks of Utah Lake.

Mr. KIRWAN. It would be better if they were getting the water out of there.

Mr. MARKWELL. They are getting about 3,000 acre-feet annually at the present time on a temporary basis.

Mr. KIRWAN. Out of that place that we in the Congress here put in to establish a drinking water system and irrigation for the city of Salt Lake and adjacent to it. So the steel plant, the largest in the world with the exception of Norristown, was constructed in the middle of the desert without investigation as to the adequacy of the water supply.

COLUMBIA BASIN PROJECT, WASHINGTON

Mr. KIRWAN. The next item is the "Columbia Basin project, Washington." The allotment for this project for 1952 amounts to $27,000,000. The estimate for 1953 is $20,000,000 and there is a proposed transfer to this project of $562,754.

Please insert in the record at this point pages 368 through 374 of your justification and explain this estimate.

(The pages referred are as follows:)

Summarized financial data

Estimated total obligations		$702, 500, 000
Total obligations to June 30, 1951		415, 955, 466
Allotment, fiscal year 1952	$27, 000, 000	
Prior year balance available	224, 457	
Total obligations, fiscal year 1952		27, 224, 457
Allotment, fiscal year 1953	$20, 000, 000	
Transfer to project	562, 754	
Total obligations, fiscal year 1953		20, 562, 754
Balance to complete		238, 757, 323

JUSTIFICATION OF ESTIMATE

Authorization.—The project was initially authorized by section 2, Rivers and Harbors Act of August 30, 1935 (49 Stat. 1028), and reauthorized by the Columbia Basin Project Act of March 10, 1943 (57 Stat. 14).

Location.—The project is located in central Washington with its major feature, the Grand Coulee Dam, situated on the Columbia River, about 95 miles west of Spokane, Wash. Project works extend south from Grand Coulee Dam over 125 miles to the vicinity of Pasco, Wash., and are located in portions of Grant, Adams, Douglas, Franklin, Walla Walla, and Okanogan Counties.

Description.—The project is to have a total rated electrical generating capacity of nearly 2,000,000 kilowatts and is to furnish water to approximately 1,029,000 acres of new land. Primary facilities include the Grand Coulee Dam, power plant, switchyards, and adjacent primary irrigation pumping plant; primary irrigation works including the 26-mile equalizing reservoir and the 20-mile main canal system; the west, east low and east high canals, served directly from the main canal; the potholes canal system, served from the Potholes Reservoir in the central portion of the project; and laterals, drains, pumping plants, operating facilities and

other properties for the irrigation of more than 1,000,000 acres of new land. The final unit of presently authorized generating installations was placed in service in September 1951. Irrigation goals contemplate completion in 1952 of facilities for a gross area of about 87,000 acres, of which about 66,000 acres are to be available for irrigation initially. Facilities for additional acreages averaging about 55,000 acres in each year will be completed on a schedule looking to the irrigation of about 400,000 acres by 1958.

Repayment.—Repayment contracts have been entered with the three irrigation districts established within the project area providing for irrigation construction cost repayment averaging on an over-all basis approximately $85 per acre. The balance of project construction cost, exclusive of $1,000,000 nonreimbursable allocation to navigation, and the cost of certain self-liquidating programs will be repaid from commercial power and pumping power revenues.

Status.—Construction commenced in 1934 and by June 30, 1952, will be about 63 percent complete. The last of the presently authorized generating units has been placed in operation. During fiscal year 1952 structural and equipment painting and other completion work on the dam and powerhouses, including construction of the dedication memorial, will be under way and additional equipment items for transforming and switching installations will be procured or on order. Completion of current spillway repair work is scheduled during the fiscal year and river channel improvement work will continue. A considerable portion of the work on streets, utilities, and general service facilities at Coulee Dam will be completed although some activities will continue into the following year. Initial pumping from the Grand Coulee pumping plant for the filling of the equalizing reservoir commenced late in fiscal year 1951. Installation of the remainder of the first six pump units will continue during fiscal year 1952 and contracts for structural completion work in the pump plant will get under way. Except for the continuing work on the Grand Coulee pump plant most major features of the primary irrigation works will be basically complete by the end of fiscal year 1952. Major contract construction will be complete on the west canal through the fourth section, on the east low canal through the third section, and on the Potholes east canal through the second section. Work will be under way on the Frenchman Hills tunnel on the west canal, on the fourth section of the east low canal, and on the third and fourth sections of the Potholes east canal. The priming, puddling, and testing of completed irrigation facilities has commenced and initial irrigation service will be provided in the spring of 1952 for the first 66,000 acres to be served from the primary works. Lateral construction for 1953 acreages will be well along by the end of fiscal year 1952 and contracts will have commenced for construction of laterals and other facilities for 1954 lands. Other necessary facilities, including relift pumping plants and related transmission facilities; drains; permanent operation and maintenance shops, offices, warehouses, dwellings; necessary temporary camps, and other properties will be under construction. Activities under agreements with the National Park Service, Fish and Wildlife Service, and other agencies will continue. The project development program will be increasingly active as the influx of settlers commences and will include planning new towns. Additional part-time farm unit distribution systems will be completed. Investigations are to be conducted to determine the feasibility of supplying municipal and industrial water from project irrigation works to communities in the Columbia Basin area; and investigation of the feasibility of the installation of additional generating capacity of Grand Coulee Dam is to be initiated.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for structural finish work in the dam and powerhouses, continuation of the east riverbank drainage and stabilization work, and the procurement and installation of additional equipment items in the switchyards at Grand Coulee to provide necessary protection and system stability under anticipated operating loads. A curtailed program of completion work in the town and on the general service facilities at Coulee Dam will continue during the year. Also to be commenced during the fiscal year at Coulee Dam is the construction of a guard and fire headquarters. Completion work on the Grand Coulee pumping plant will continue and works either complete or under construction by the end of the year will extend to the Frenchman Hills tunnel on the West canal, then to be nearing completion; through the fifth section of the East Low canal; and the fourth section of the Potholes East canal. Laterals and related facilities serving the 60,000 acres of 1953 lands will be complete during the fiscal year and initial irrigation of these blocks will commence in the spring of 1953. Contracts will be under way or commencing on facilities for 1954 acreages, and work on facilities

for 1955 acreages will be begun. Construction of dwellings and related facilities for the housing of ditch riders and pump operators in isolated areas will continue, construction of the fifth development farm will be commenced and necessary temporary construction facilities will be provided. The settlement land purchase and project development programs will continue and will include planning new towns. Cooperative undertakings in conjunction with other Government agencies and State colleges will be carried on. Additional distribution systems for part-time farm units will be constructed. Priming, puddling, testing, and necessary system rectification on completed works will be under way. Investigations to determine the necessity for, and feasibility of, furnishing municipal water supplies from the project works will continue as will investigation of the feasibility of installing additional generating capacity at Coulee Dam.

Justification.—A substantial investment has been made in the primary irrigation works of the Columbia Basin project. In 1952 an initial 66,000 acres served by these facilities will be brought under irrigation. In subsequent years it will be possible, through relatively small additional investment in dollars and in critical materials, to place under irrigation substantial additional blocks of presently nonproductive land, contributing significantly to the productive capacity of the Pacific Northwest and strengthening the economic base on which the defense program rests. The effective and efficient utilization of the primary works is dependent on placing substantial acreage under irrigation within the first 3 to 4 years of operation. Present schedules anticipate the completion of facilities for irrigation of more than 240,000 acres by 1955. An operating system and irrigated acreage of this size is considered minimum for efficient self-supporting operation over any prolonged period. Adherence to the present program is necessary if excessive operation and maintenance cost per acre irrigated is to be avoided and if reasonable return in irrigated acres per dollar invested is to be realized. Following the completion of generating unit installations at Coulee Dam it is important that the plant and service facilities rapidly be brought to a stage of completion which will allow the most efficient operation possible over a prolonged period. Delay in this work, with resulting increase in operating expense and in the cost of eventually performing the completion work, should be avoided. Assistance to settlers will include a cooperative agreement with Washington State College for the transfer of project funds to the college for employment of assistant county agents and related assistance to settlers.

The total estimated cost of the Columbia Basin project has been decreased from $715,100,000 to $698,886,000 (anticipated total obligations $702,500,000). This reduction is primarily due to the decision to eliminate reinforcing in the canal lining on the lower reaches of the West canal and Potholes East and West canals and certain sections of the East Low canal and to eliminate canal lining entirely in the lower sections of the latter canal. Substantial decreases also resulted from favorable bids for the construction of the Frenchman Hills tunnel, fourth section of the West canal, and other facilities. These decreases were partially offset by the need for additional channel improvement and stabilization work and increases in the cost of laterals based on more current data and cost indexes.

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Joint facilities:					
Grand Coulee Dam and Reservoir	$141,100,000	$134,308,970	$5,215,000	$1,022,000	$554,030
Other multipurpose plant facilities	26,000,000	16,367,601	1,691,000	656,000	7,285,399
General plant depreciation	−1,240,000	−1,188,018			−51,982
Irrigation facilities:					
Primary irrigation works	86,300,000	65,531,366	2,846,000	1,370,000	16,552,634
West canal irrigation area	64,800,000	28,939,681	7,526,000	4,928,000	23,406,319
East low canal irrigation area	82,000,000	19,600,386	8,784,000	5,033,000	48,582,614
Potholes irrigation area	72,100,000	16,178,355	5,348,000	5,636,000	44,937,645
East High canal irrigation area	84,700,000	3,058		10,000	84,686,942
Pasco and Burbank pumping units	3,800,000	2,964,969	31,000	11,000	793,031
Project development	5,500,000	1,212,348	302,000	401,000	3,584,652
Other irrigation plant facilities	4,200,000	391,577	406,000	315,000	3,087,423
Power facilities:					
Left powerplant—structures and equipment	40,500,000	40,079,096	167,000	65,000	188,904
Right powerplant—structures and equipment	50,600,000	48,481,023	442,000	276,000	1,400,977
Transforming and switching facilities	22,400,000	19,839,776	1,072,000	1,096,000	392,224

Program item (1)	Estimated total (2)	Total to June 30, 1951 (3)	Program, current year 1952 (4)	Program budget, year 1953 (5)	Balance to complete (6)
Other self-liquidating programs:					
Settlement land purchase program	$11,500,000	$1,611,075	$2,587,000	$732,000	$6,569,925
Part-time farm unit distribution system	1,800,000	42,750	65,000	52,000	1,640,250
Completed self-liquidating programs	2,826,000	2,826,000			
Total costs	698,886,000	397,190,013	36,482,000	21,603,000	243,610,987
Construction facilities		4,425,105	20,000	−125,000	−4,320,105
Stores		2,805,713	−800,000	−503,000	−1,502,713
Project investigations:					
Examinations and surveys		1,510,635	−150,000	−150,000	−1,210,635
Feasibility investigations, third powerhouse, Grand Coulee Dam			50,000	125,000	−175,000
Transfers, credits, and other expenditures	3,614,000	1,226,649	419,808	−387,246	2,354,789
Total expenditures	702,500,000	407,158,115	36,021,808	20,562,754	238,757,323
Unliquidated obligations prior year		8,797,351	−8,797,351		
Total obligations	702,500,000	415,955,466	27,224,457	20,562,754	238,757,323
Method of financing:					
Allotment, fiscal year 1952			27,000,000		
Prior-year balance available			224,457		
Transfer to project				562,754	
Allotment required				20,000,000	238,757,000

GENERAL STATEMENT

Mr. MARKWELL. I have a statement, Mr. Chairman.

On the Columbia Basin project our 1953 program, totaling about $21,000,000 of which $20,000,000 of new funds are required, provides for continuation of work underway at the end of the current fiscal year and commencement of only such additional construction as is essential to the achievement of our immediate program goals. The annual program is decreasing on this project by virtue of the fact that the power installations and primary irrigation works are practically completed. The 1953 fund request is approximately 25 percent less than the 1952 allotment.

The last of the 18 main generating units in the Grand Coulee power plants went into service in September 1951. Of the presently authorized power construction program only relatively minor amounts remain to be expended, for completion items in the power plants and for additional transforming and switching facilities.

IRRIGATION PROGRAM

In regard to the irrigation development the present estimate is essentially another year's requirement to sustain the same program we have been presenting for several years. This program contemplates the completion in 1952 of facilities to serve a gross area of about 87,000 acres, of which the net acreage actually available for irrigation will be about 66,000 acres. Facilities for an average of about 55,000 acres are scheduled to be completed each year thereafter under a program which calls for development of about 400,000 acres by 1958. The program is proceeding on schedule, and settlers are busily preparing to receive water this spring in the areas included in the 1952 development program. With the huge investment already made in

the Grand Coulee pumping plant and other primary works which had to be built before any water could be delivered to the land, large yearly increments of additional land can be brought into production with relatively small additional expenditure. The Grand Coulee pumping plant was in operation for the first time early last fall, making water available in the principal canal and distribution systems for testing and priming purposes in preparation for the initial irrigation in the spring of 1952. In fiscal year 1953 canals, laterals, and related works required to serve areas to be irrigated in 1953 will be completed, and contracts will be underway or commencing on facilities for 1954 and 1955 acreages. On a development such as the Columbia Basin project much of the construction must be in progress 2 years and more before water is actually delivered.

SETTLEMENT LAND PURCHASE PROGRAM

The settlement land purchase program will continue as well as the project development programs and the cooperative undertakings in conjunction with other Government agencies and State colleges. The fifth development farm will be started. These development farms are proving of inestimable value in demonstrating to new settlers approved methods of irrigation and cultural practices.

The land settlement program, to which we have looked forward for several years, is now getting well under way. Approximately 4,600 acres comprising 80 farm units which consisted primarily of Government-acquired land will have been sold to settlers with veterans having preference, during fiscal year 1952. During 1953, 37 farm units comprising 2,823 acres are scheduled for sale.

The supplying of water to this land opens a great new vista of settlement opportunities unequaled since the days of the early western land rushes. These opportunities are created as a result of the far-sighted policy established by the Congress to provide family-sized farms on the project and to prevent land speculation.

SETTLER ASSISTANCE PROGRAM

The settler assistance program which is conducted in cooperation with the State College of Washington and other Government agencies is being accelerated in order to provide new settlers with the technical assistance necessary in the development of their farm units. Recently the State College of Washington and the Bureau of Reclamation with the assistance of other Federal and State agricultural agencies prepared a Farmers Handbook for the Columbia Basin Project whch puts the latest available information into usable form. This handbook was printed by the Agricultural Extension Service of the State College of Washington. The Secretaries of the Departments of the Interior and Agriculture recently entered into a memorandum of understanding which provides procedures to be used in the making and servicing of loans made by the Farmers Home Administration to settlers on the Columbia Basin who purchase farm units from the Government. We have worked closely with officials of the Farmers Home Administration in estimating the credit needs of settlers and believe plans have been made whereby eligible applicants may obtain reasonably adequate credit, assuming that sufficient loan funds are available to the Farmers Home Administration.

Studies based on a survey of town requirements on similar irrigated areas in the Northwest, have disclosed the need for additional towns to serve the requirements of new settlers on the project. The project maintains a limited staff assigned to project development activities including the planning of future townsites. Considerable assistance has already been given to existing towns, particularly the town of Quincy, in planning for future expansion and development. This work will be continued, and will include an active program of consultation with the irrigation district boards and representatives of existing project towns and civil organizations to keep them fully informed of our objectives, plans and programs with respect to townsite development. In addition, this staff has been cooperating with the Farmers Home Administration and other Federal and State agencies on the problem of supplying domestic water to project settlers.

CONTINUATION OF RIVER BANK STABILIZATION

The 1953 program also provides for the continuation of river bank stabilization work at Coulee Dam. An extensive program of river bank resloping, riprap, replacement, and placing of a layer of large rocks referred to as armor rock has been underway since 1949 following the 1948 Columbia River flood which caused major damage by erosion of the river banks and displacement of previously placed riprap protection. Most of this protective work will be completed during fiscal year 1953, but a recent inspection by divers has disclosed that a considerable increase in the amount of work required in 1952 and 1953 is in prospect because the river during the 1951 flood season again removed some of the protective rock from the base of the river banks, leaving them inadequately protected. Recurring slides and lack of complete stability of the river banks immediately below Grand Coulee dam constitute a serious problem of long standing, aggravated by the extremely high stage of the river in 1948.

The stabilization program is designed to correct the condition, although some continuing maintenance must be anticipated. An additional consideration is the matter of operating restrictions on tailwater fluctuations below the dam. As a precaution against the possibility of slides, which could be most serious, the power plants are operated in such a manner as to limit to a maximum of 4 feet the daily fluctuation of the tailwater level. In the absence of this restriction greater flexibility in power operations would be possible, but in view of the present instability and the uncompleted status of remedial measures the operating restriction must be maintained. The operating rules will be modified to obtain any additional benefits that may be possible whenever this can be done safely.

A curtailed program of completion work in the town of Coulee Dam and on general service facilities will continue during the year.

INVESTIGATION OF ADDITIONAL GENERATING CAPACITY

This fiscal year an investigation is being started of the feasibility of installing additional generating capacity at Grand Coulee Dam. These preliminary investigations are to provide answers to such basic questions as what additional peaking capacity and seasonal generation may be justified for the near future, as well as what additional firm

capacity may be feasible when additional upstream storage is provided. These studies will consider alternate sites for a possible third power plant, and hydrologic studies to determine power capabilities in connection with power system operation. Completion of the studies, including a report on the findings and recommendations, is scheduled for fiscal year 1953.

Mr. MARKWELL. Now I would like to summarize it. This will be a banner year for the irrigators in the Northwest. It will mean the first gravity irrigation on the Columbia Basin project.

Some 66,000 acres in an area of 87,000 acres will be irrigated, beginning in May of this year.

REQUEST FOR IRRIGATION FACILITIES

Of the 20½-million-dollar program, about 17½ million dollars will be spent for irrigation works. There will be about 1¼ million for finishing up the power facilities, and about 1¾ million for the very important item of stabilizing the river banks downstream from the dam.

POWER FEATURES OF GRAND COULEE

I would like to state, Mr. Chairman, that the Coulee power plant, which is the largest in the world, was conceived, designed, and built as a base-load plant, although it does have a permissible variation in load factor of about 40 percent in each 24 hours.

I would also like to state in this connection that an investigation is now under way to determine the engineering and economic feasibility of installing a third power plant.

There was some publicity, Mr. Chairman, with reference to the desirability of trying to convert this largest power plant in the world from an essentially base-load plant to a peaking operation.

OPERATING RESTRICTIONS ON TAILWATER FLUCTUATIONS

So that the committee may be fully informed on this situation and without going into details, I should like to submit for the record a memorandum from the Assistant Commissioner to the Administrator of the Defense Electric Power Administration, and a press relese which explains the operation of the Coulee Dam, so that full information will be in the record and available to the committee.

(The material referred to is as follows:)

DECEMBER 4, 1951.

Memorandum.
To: Administrator, Defense Electric Power Administration.
Through: Under Secretary Searles.
From: Assistant Commissioner, Bureau of Reclamation.
Subject: Restrictions on tailwater variations at Grand Coulee Dam-Columbia Basin project.

Your concern about the operating restrictions on tailwater fluctuations at Grand Coulee Dam, as stated in your November 2, 1951, memorandum, is appreciated. However, I cannot recommend relaxation of these restrictions to meet power requirements of the 1951–52 operating season, as estimated in the Northwest power pool's report, because I am convinced that such a relaxation would involve the risk of serious damage to important installations below the dam.

The necessity of adhering to the current operating practice of limiting the rate of draw-down of the tailwater at Grand Coulee Dam to 4 feet in a 24-hour period is based on actual experience. Since the river was controlled in 1938, numerous cracks and slides have occurred in the banks below the dam, each coincident with

a rapid lowering of the river level. The slides of September and October 1950, which occurred when the Columbia River was allowed to drop 4½ feet and 3 feet, respectively, in 24 hours, indicate that the river-bank slopes were then in delicate balance. The problem of stabilizing these slopes has been studied by several consulting boards composed of eminent engineers and geologists, and large sums of money have been spent in holding the line against further river encroachment into the banks.

In January 1949, the most recent consulting board recommended additional riprap protection on both river banks and an investigation program in critical areas to determine effective means of stabilizing the slopes. The right tailrace area was given special consideration because slides or subsidences involving the right switchyard, which is located there, might result in serious interruption or reduction of power output. The importance of stabilizing this area was emphasized by the fact that a subsidence in September 1949, was the highest ever recorded on this slope and extended to within 400 feet of the switchyard. Preliminary exploration of the area has been completed and a contract has been awarded for a trial drainage installation which is scheduled for completion in February 1952. Rock protection of the right tailrace area below normal river level is scheduled for completion in January 1952, and underwater rock protection of the left tailrace is not scheduled for completion until November 1952. It should be noted that the rock protection of both tailraces and the proposed drainage installation are remedial measures based on current operating practices.

Studies made on the mechanics of the slides in the right tailrace area indicate that the observed slope movements were caused by a combination of rapid lowering of river level and residual water pressure in the bank. Exact determination of the effect of a particular increase in rate or amount of draw-down is impossible because of the heterogeneity of the soil and of our present limited knowledge of the pore pressures and rates of drainage in the river bank. However, the studies show that drainage of the ground would have a salutary effect on slope stability; hence the trial drainage installation will test the feasibility of reducing residual water pressures in the soil of the bank. This installation should also give more information on the ability of the right river bank to withstand rapid draw-downs of increased magnitude. However, even with entirely favorable results it will be July 1952 at the earliest before the final drainage system can be installed.

In view of the present instability of the river-bank slopes below Grand Coulee Dam and the uncompleted status of remedial measures for protection of both tailrace slopes and the right switchyard area, I believe it is too risky to permit an increase in allowable fluctuations of the river level during the winter of 1951–52. Slides caused by more rapid fluctuation than is now permitted could not only involve loss of life and property downstream from the dam, but might result in blocking the draft tubes and tailraces of both power plants and rendering the right switchyard inoperable.

I therefore wish to emphasize strongly that the restriction on tailwater fluctuation is dictated by the necessity of avoiding conditions which might well lead to catastrophe. To not impose such restrictions could well result in most serious consequences such as long outages of large magnitude.

It is pointed out that the Grand Coulee power development was planned for major base-load operation and the results have been gratifying beyond anticipation. To insist that a daily extreme load-factoring operation be superimposed upon its prime function of major base-load operation at the risk of seriously impairing its major function is not tenable. At the same time, as soon as changes now contemplated prove that additional load factoring can be safely done, we will be pleased to modify the operation to obtain any additional benefits possible.

KENNETH MARKWELL.

[Bureau of Reclamation press release January 6, 1952]

DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

ESTABLISHED OPERATING PROCEDURES PROTECT DOWNSTREAM BANKS AND FACILITIES AT GRAND COULEE DAM

The presently established operating procedure at Grand Coulee Dam was developed to safeguard installations below the dam and yet provide the greatest amount of peaking power within limits which cannot be relaxed at the present time, Secretary of the Interior Oscar L. Chapman announced today.

A change in the operating procedure to permit still greater peaking output was explored by the Defense Electric Power Administration with the Bureau of Reclamation. Commissioner of Reclamation Michael W. Straus replied that such relaxation would involve a serious risk and should not be considered at this time.

Commissioner Straus exmphasized that even under the present limitations the output of the giant powerhouses of Grand Coulee is fluctuated daily as much as 40 percent to assist in meeting the Northwest system's peak demands.

"It is unfortunate," he said, "that a somewhat misleading impression exists to the effect that the downstream bank erosion is so critical that Grand Coulee Dam must be held at a steady unvarying power output with no change in the water elevation below the dam.

"Actually, the daily peaking variation at Grand Coulee, amounting to 800,000 to a million kilowatts, is the greatest single assistance the Northwest power has in helping the system meet daily load fluctuations. To go beyond this, however, would necessitate varying the tailrace level in the river by more than 4 feet in 24 hours. Because of instability of the downstream river banks, this would gravely jeopardize the operations."

The proposal to use Grand Coulee Dam power for peaking purposes beyond the very substantial peaking it is now providing would mean that a very high flow would have to be released through the turbines in daily periods of high power demand in the Pacific Northwest and the flow would have to be very sharply curtailed during the midnight to early morning hours causing the tailrace level to drop more than the 4-foot limitation now in effect. Such excessive river fluctuations, as has already been demonstrated, would almost certainly start slides which would cause serious damage downstream and might well necessitate long outages which would have very adverse effect on the Northwest power supply.

Commissioner Straus explained that the soil in the river banks immediately below Grand Coulee Dam has an unusual water-absorption capacity and actually requires the pressure of the river level to keep it in place when it is wet through. When the level of the river lowers slowly, the water drains out of the banks and they become more stable again of their own weight. However, when the river level is lowered rapidly without giving the water a chance to drain out of the soil, slides result causing the river bank to move into the river path resulting in serious erosion.

Major slides could be caused which would not only involve loss of life and of property built along the downstream river banks but which might even block the outlets from the turbines and sharply curtail the present high output of power. The dam itself is constructed on a solid rock base and keyed into the solid rock canyon walls and is, of course, not subject to any danger.

However, the downstream river banks for some miles consist of great glacial overburden of very fine silt formation, and to try to completely stabilize such banks against extremely rapid rise and fall of the river could well run into a cost of tens of millions of dollars. Nevertheless, the Bureau is vigorously proceeding with studies and investigations to assure maximum stability compatible with economic feasibility. When Grand Coulee Dam was under construction, it was necessary to stabilize these banks by freezing to keep them from sliding into the foundation excavation before the concrete was poured.

"The results already obtained from this magnificent development at Grand Coulee," Commissioner Straus said, "have far exceeded the most optimistic earlier estimates. Not only is it the largest power development in the world, but it is now supplying the Northwest with electrical energy at a rate of more than 15 billion kilowatt-hours a year. The original estimate was that it would produce at a rate of about 9 billion kilowatt-hours a year, so its actual accomplishment is now exceeding by over two-thirds what was estimated would be a tremendous production.

"This output considerably exceeds the entire supply of New York City. It provides nearly 50 percent of the peak power requirements of the whole Northwest region as well as about 50 percent of the total energy requirements. In addition, by its daily peaking operations, it is by far the largest single factor in meeting the fluctuating power demands of the Northwest. I think we can well be proud of this achievement, particularly so as it confirms so completely the judgment of our planners when, in the early 1930's, the label of 'white elephant' was so frequently used by those who opposed this great development."

Grand Coulee Dam and power plant are key features of the Columbia Basin project. The power plant is the largest hydroelectric plant in the world with a maximum output from its 12 giant generators very often going over 2 million kilowatts in periods of high water. However, in periods of low seasonal flow in

the fall and winter, the output of power is governed by the available water. Additional firm, year-around power will be available when Hungry Horse Dam, now under construction on the South Fork of the Flathead River in Montana, and other storage dams on the main stream of the Columbia and its tributaries, are completed.

INVESTIGATION OF THIRD POWER PLANT

Mr. MARKWELL. With reference to the investigation for the third power plant which is now under way, we have a preliminary report which contains some maps and charts which is available for the committee, but in view of the charts and maps I do not know whether you wish to put it in the record.

Mr. KIRWAN. No. Are you on schedule in bringing in this new acreage?

Mr. MARKWELL. Yes, sir.

SETTLEMENT PROBLEM

Mr. KIRWAN. Do you contemplate any difficulty in getting settlers on the land?

Mr. MARKWELL. It is a problem, of course. But we expect to be able to accomplish it, with the cooperation of Washington State College and other agencies of the State and Government. We are all working very closely together.

Mr. LINEWEAVER. With further reference to Mr. Kirwan's question on settlers and in response to a request from Mr. Jackson, the Bureau of Reclamation desires to advise the committee of the program for cooperation of the Washington State College with the Bureau of Reclamation in promoting the settlement of the Columbia Basin project. This is important now that irrigation of large blocks of land will start in May 1952. A new agreement with Washington State College, with headquarters at Pullman, Wash., is being worked out under section 46 of the Omnibus Adjustment Act of 1926, which authorizes the Secretary of the Interior to enter into agreements with proper authorities of a State to promote the settlement of reclamation projects. The program of cooperation between Washington State College, on behalf of itself, and the Extension Service and some other Department of Agriculture agencies, has been exceedingly helpful in planning the settlement program. Now that the project is entering into a major phase of the irrigation development, further cooperation is required and a new agreement is being negotiated with the college for the services of an increased number of assistant county agents to advise and assist settlers on crops and livestock, irrigation methods, soil practices, markets, and related matters. The program contemplates that the Columbia Basin project funds will defray approximately 40 percent of the costs of the cooperative work, and the college from State and other Federal funds will defray about 60 percent. The new agreement contemplates a 3-year program beginning in fiscal year 1953 under which project funds used for cooperative purposes with the college would be limited to about $60,000 annually and would be transferred to the college for that purpose. Other agencies, including the Department of Agriculture, and other State agencies will be invited to cooperate. Since the United States Government will have an investment of $400,000,000 in the irrigation facilities of the Columbia Basin project, the importance of irrigation assistance to settlers will be readily recognized.

AVAILABILITY OF MATERIALS

Mr. KIRWAN. Are you encountering any difficulty in getting material?

Mr. MARKWELL. The situation so far has been reasonably satisfactory. We expect we will be able to go ahead. We do not always get the material as soon as we want it or as much as we need, but I would say that we are proceeding satisfactorily.

LAND UNDER IRRIGATION

Mr. NORRELL. How much land have you actually irrigated and improved into small farms like you had in mind at the beginning?

Mr. MARKWELL. The only land actually under irrigation, Mr. Chairman, is the Pasco pumping area and the Burbank area at the extreme southern end of the project.

We are now in the course of preparing land to receive water this coming year. There is a total of an additional 66,000 acres in an area of 87,000 acres which will be available for irrigation this summer.

Mr. NORRELL. Have you made any improvements on any of the land, such as houses and so on, have you done any of that yet?

Mr. MARKWELL. No, sir.

SALE OF LAND TO GI'S

Mr. NORRELL. Have you sold any of the land? I know that we had in mind that GI's might go out there and buy some land.

Mr. EATON. Approximately 130 farm units have been advertised for sale and contracts on almost 100 of them have been executed by this time. The remaining ones are in process. Sales contracts have been executed on that many. They have a time, they have about 20 years time in which to pay.

Mr. NORRELL. And contracts have been executed on about 100 tracts?

Mr. EATON. Approximately 100.

Mr. NORRELL. Are there people living on the land?

Mr. EATON. Quite a number of them have already moved in this fall, even in advance of the irrigation water.

Now, all of them are required to establish residence in order to perfect their titles.

ALLOCATIONS FOR REPAYMENT

Mr. NORRELL. How much of the cost, which I believe we estimated to be about $172 million plus, will be charged to items other than irrigation and power?

Mr. MARKWELL. There is a small item for flood control and navigation, I believe, only about $1 million or thereabouts.

Mr. NORRELL. All told?

Mr. MARKWELL. Yes, sir. That is under the original allocation, of course.

Mr. JACKSON. Pursuing that same point, as I recall, Mr. Markwell, an allocation of $85 an acre was made for reclamation, or a total of about $85 million based upon a 1 million acre total.

Mr. MARKWELL. Yes, sir.

Mr. JACKSON. And the balance was to be paid out of revenues from power?

Mr. MARKWELL. Substantially; yes, sir.

STABILIZATION OF RIVER BANK

Mr. JACKSON. You have an item in here for bank stabilization below the dam.

Mr. MARKWELL. Yes, sir.

Mr. JACKSON. Could you give us a brief statement with reference to the work you have done to date in that connection and also what the prospects are of licking the instability?

Mr. MARKWELL. The work done so far, Mr. Jackson, consists of enlarging the channel somewhat, the resloping of the banks, and placing armor or riprap on the banks.

I have a more complete statement on that, Mr. Jackson, which I would be very happy to put into the record at this point.

Mr. JACKSON. Yes, sir; if you would put this statement in the record, I would appreciate it.

(The statement referred to is as follows:)

RIVER BANK PROTECTION AT GRAND COULEE DAM

Recurring slides on the river banks immediately below Grand Coulee Dam have been a major problem ever since early in the construction period. Stabilization of slides which occurred during excavation for the dam foundations required the removal of more than a million cubic yards of earth in addition to anticipated quantities. Subsequent smaller movements and evidences of instability gave rise to numerous studies by Bureau engineers and outside consultants during the construction period. These studies, particularly a consulting board report prepared in September 1940, emphasized that the three chief causal conditions or agents of instability were the undercutting of the banks at the river edge, overload of overburden, and overcharge of subsurface water with consequent weakening effect on the ground structure. The preferred corrective measures, therefore, would be (1) protection of the lower portions of the slopes against serious erosion by the river; (2) unloading of a portion of the overburden; (3) removal or partial removal of water content. All three of these measures were successfully used to improve the stability of the river banks as the need developed during the period between 1934 and 1948.

The current enlarged program of river-bank stabilization at Grand Coulee Dam is an outgrowth of the Columbia River flood of June 1948, which caused serious erosion and removal of previously placed riprap protection, leaving the banks dangerously unprotected to resist future floods. The rate of river flow at Grand Coulee Dam reached 633,000 cubic feet per second during the 1948 flood, the highest since 1894. In no prior year since construction was initiated in 1934 had the peak exceeded 400,000 cubic feet per second, and in many of those years the peak did not exceed 300,000 cubic feet per second. In view of the damage caused, the necessity for an extensive protective program was immediately apparent. Some riprap was placed immediately at points of greatest danger. The production and stockpiling of rock for riprap purposes was included in a general contract covering completion items around Grand Coulee Dam awarded in October 1948, so the rock would be available for emergency work before the next spring high water.

It was recognized, however, that a complete reappraisal of the protective requirements was in order, rather than a simple replacement of conditions existing immediately before the 1948 flood. Accordingly, in January 1949, when the river had reached a sufficiently low level to afford full opportunity for examination of the effects of the flood, a consulting board of engineers and geologists was convened at the site. The board was charged with considering a comprehensive plan for channel improvement and shore protection, and submitting conclusions and recommendations thereon to the Bureau's Chief Engineer. The consulting board submitted its report on January 13, 1949, and the river bank protection program now in progress is based on recommendations in that report.

The board considered the general principles of protection previously developed and outlined in the 1940 report mentioned above to be still sound, and if suitably applied in the light of the experience gained during the 1948 flood measures based on these principles would bring the earth mass under study to increased stability. Briefly, summarized, the consulting board recommended: (1) a program of rehabilitation of the existing riprap layer and placing of an additional layer of "armor coat" of larger rocks over the rehabilitated riprap, with the general objective of protecting the earth banks with an "inverted filter," the outermost units of which would be sufficiently heavy to resist displacement; (2) removal of overburden by excavation, flattening the upper slopes of a portion of the tailrace and adjacent river banks; (3) drainage of the right tailrace area, this to be preceded by investigation to determine the best design for drainage works. As the board of consultants viewed the problem it was essentially a continuation of the original construction program deferred to such time as it might be needed and the extent of the need determined. That time arrived with the 1948 flood and the board's recommendations were intended to bring the prior program up to date. The board pointed out that because of the continuing character of the natural processes involved, continual maintenance and additional measures similar to those then required would be necessary. The board concluded its report by calling attention to the fact that the activity of the river is never ended, and until such time as the upper reaches of the Columbia River system are in much more complete control, and the operation of the control facilities suitably coordinated, floods such as that of 1948 will occasionally occur.

In addition to the emergency actions after the 1948 flood, three major contracts have been awarded to carry out the principal parts of the protective program outlined by the consulting board. In November 1949 a contract was awarded which included excavation for resloping of the river banks and riprapped slopes, including the relocation of the left powerhouse road, and the furnishing and placing of additional riprap and armor rock above the water level. Another contract was let in September 1950 for river channel improvements consisting primarily of the placing of underwater slope protection in the form of riprap rock and armor rock. Another contract was awarded in June 1951 for the continuation and virtual completion of the riprap and armor rock work, so far as present needs were known.

Recent inspection by sounding and by divers in connection with the latest of these contracts disclosed that a considerable increase in quantities of underwater armor rock is now in prospect because a large amount of previously placed rock has been removed by action of the river. This removal does not represent a complete loss because the rock presumably remains at a lower level in the channel where it still has some protective effect in reducing erosion. In its 1949 report the consulting board noted that the boulder layer protecting the river bottom had been actually improved by the natural migration of riprap from the sides of the channel. This circumstance does, however, necessitate substantially greater expenditure for the armor rock program during fiscal years 1952 and 1953 than was anticipated prior to the recent inspection.

One of the board's recommendations was the initiation of a program of investigation of the right tailrace area to form the basis for designing a subsurface drainage system. A program for construction of drainage tunnels was contemplated. Results of exploratory drilling have indicated that adequate drainage might be accomplished by drain holes in lieu of drainage tunnels or drifts. A small contract for preliminary drilling on an experimental basis to determine the effectiveness of such drain holes was awarded in November 1951. Whether the program outlined will need to be expanded or modified will depend on the effectiveness of drilled drainage holes.

The consulting board's report also contemplated possible additional stabilization of the armor rock by grouting in critical areas. Whether this will be needed cannot be determined until the present protection program is completed and tested with larger than average river flows. The average weight of individual pieces of armor rock being placed at present is somewhat larger than contemplated by the consulting board and such grouting may not be needed.

The next year's program for river bank protection is essentially a continuation of work on contracts now in force. The two principal contracts for placing armor rock run to the late spring of 1953, although the additional quantities now known to be required may affect the completion dates. Progress on these contracts has been very good, and steps have been taken to further accelerate the work, which should have definite advantages to the Government in respect to accomplishing earlier protection.

An additional consideration having a bearing on the bank stabilization program is the matter of operating restrictions on tailwater fluctuations at Grand Coulee Dam. The 1949 consulting board in its report made note of the effect of rapidly fluctuating river levels on slides which had occurred in the past, and recognized the need for more complete protection against the effects of such fluctuations. The Bureau has for some time had in effect an operating restriction limiting the daily fluctuation of the tailwater to four feet, as a precaution against slides due to this cause. The Defense Electric Power Administrator recently expressed concern about the effect of the operating restriction on the power supply which can be made available during peaks in daily demand in the Pacific Northwest, and inquired as to whether anything could be done to improve the situation. Reclamation had to report that it is too risky to permit an increase in allowable fluctuations of the river level during the winter of 1951–52 in view of the present instability of the river bank slopes and the uncompleted status of remedial measures for their protection. It was emphasized that the restriction on tailwater fluctuation is dictated by the necessity of avoiding conditions which might well lead to catastrophe. The Bureau stated, however, that as soon as additional load factoring can be done safely, operating rules will be modified to obtain any additional benefits possible.

REQUEST FOR 1953

Mr. JACKSON. How much is allocated for fiscal year 1953 for bank stabilization below the dam?

Mr. MARKWELL. About $250,000.

Mr. JACKSON. Will that complete the work?

Mr. MARKWELL. We hope that—well, we will make considerable progress but I would hesitate to say, in view of the problems involved, that it would actually complete the work.

Mr. JACKSON. Did you put a statement in the record as to the amount of money spent to date on that?

Mr. MARKWELL. Yes, sir.

Mr. JACKSON. I would also like a little more detailed breakdown on the expenditures proposed for fiscal year 1953 beyond the amount included in the justification; may we have it on all these items?

Mr. MARKWELL. We will be very glad to do that, to insert that for you.

(The information requested is as follows:)

PROPOSED PROGRAM FOR FISCAL YEAR 1953

JOINT FACILITIES

Grand Coulee Dam and Reservoir—Fiscal year 1953—$1,022,000

Funds requested under this heading for fiscal year 1953 will be used for continuation of drainage work on the east river bank which was started in fiscal year 1952. A number of painting contracts will be under way including painting of the steel lining of the outlet tubes, the interior protective painting in the dam which will be completed during the fiscal year, and painting equipment utilized in the spillway bucket repair operation including the floating caisson, face caisson, puller machines, and the work barge. A minor amount of force account operations will be under way including work in connection with the installation of drum gate flashboards and piezometers. Funds will also be expended for engineering, design, and administration and necessary minor supply equipment and service contracts.

Other multipurpose plant facilities—Fiscal year 1953—$656,000

Under this heading street and sidewalk improvements in the town of Coulee Dam will continue and a contract will be awarded for construction of the guard and fire headquarters; the industrial area electrical distribution system will be completed; the compressor house in the industrial area will be under construction; and funds will be expended for necessary design, engineering, administration, materials and supplies, and a small amount of force account construction on general project service and utility features.

IRRIGATION FACILITIES

Primary irrigation works—Fiscal year 1953—$1,370,000

Installation of pumps and controls will be completed and structural and equipment painting in the pumping plant will be undertaken. Filling and testing of the Grand Coulee equalizing reservoir will continue and sealing operations within the reservoir area will be performed where necessary. A second contract in connection with the Soap Lake protection interception and conveyance system is to be completed during this fiscal year. Expenditures for minor force account work including operation of the pump plant for testing purposes, necessary design, administration, engineering, and general expense items will constitute the remainder of the program.

West canal irrigation area—Fiscal year 1953—$4,928,000

Under this heading work will continue on the construction of the Frenchman Hills Tunnel and the completion of the fourth section of the West canal. Rectification of system weaknesses and necessary fencing installations will continue. Construction of lateral areas W–6A, W–6B, and W–7 will be initiated and will continue on lateral area W–8. Construction of the Babcock pumping plant will continue and construction of the transmission line and substation to serve this plant will be initiated. Funds will also be expended for necessary materials and equipment, design, administration, engineering, and inspection.

East low canal irrigation area—Fiscal year 1953—$5,033,000

Construction of the fourth section of the East low canal and Lind Coulee wasteway will continue and be virtually completed by the close of the fiscal year; construction of the fifth section will be initiated; lateral area E–3 will be completed early in the fiscal year; and priming, puddling, and testing will be commenced by project forces. Construction of the lateral area E–4 will continue and a contract will be awarded and construction initiated on the E–5 system. Construction of a pumping plant and discharge line for area E–5 and for the transmission line and substation to serve this pumping plant will also be initiated. Funds will be expended for minor contracts in connection with system rectification, procurement of materials and equipment, and necessary design, engineering, and administration.

Potholes irrigation area—Fiscal year 1953—$5,636,000

Construction of the third section of the Potholes east canal will be completed and the fourth section will continue. Construction of a railroad bridge on the second section of the Potholes east canal will be completed. Rectification of system weaknesses and installation of necessary fences will be active. Construction of the lateral system for areas P–1 and P–2 will be completed and work on areas P–3 and P–8 will continue. A contract will be awarded for construction of the lateral area P–4 late in the fiscal year. Construction of the Ringold pumping plant will be substantially complete by the end of the fiscal year, as will the transmission line and substation to serve this plant. Funds will also be expended for minor force account work on lateral and canal testing and for necessary design, engineering, administration, and the procurement of materials and equipment.

East High canal irrigation area—Fiscal year 1953—$10,000

These funds will be expended for the initiation of system studies in connection with the plan of construction of the East High irrigation area.

Pasco and Burbank pumping units—Fiscal year 1953—$11,000

These funds will be used for completion of the modification of the 6.2 relift pumping plant.

Project development—Fiscal year 1953—$401,000

Under this heading the exploratory well program will continue and a fifth development farm to be located near Othello will be constructed. Funds will also be advanced to the State College of Washington for continuing a program of cooperative research on irrigation agriculture. Programs of settler assistance and research and planning will continue.

Other irrigation plant facilities—Fiscal year 1953—$315,000

Under this heading funds will be expended for the continuing purchase of operation and maintenance equipment. Necessary design, engineering, inspection, and administration will continue.

POWER FACILITIES

Left power plant—Structures and equipment—Fiscal year 1953—$65,000

Under this heading work will continue on the contract for installation of ventilation ducts, draft tube deck lighting, and miscellaneous minor completion items. Necessary design, engineering, and administration will continue.

Right power plant—Structures and equipment—Fiscal year 1953—$276,000

The contract for installation of doors, steel hand railing, and equipment painting, and the contract for structure painting will be completed during the fiscal year. Funds will also be expended for numerous necessary minor material and equipment items. Design, engineering, and administration will continue.

Transforming and switching facilities—Fiscal year 1953—$1,096,000

Major expenditures will be concerned with the procurement of equipment to be utilized in obtaining system stabilization and adequate protection under anticipated Northwest Power Pool operating loads. This will include the purchase of various electrical equipment. In addition, funds will be expended on installation of an autotransformer bank and minor construction in both switchyards. Procurement of necessary materials and equipment, and design, engineering, and administration will continue.

OTHER SELF-LIQUIDATING PROGRAMS

Settlement land purchase program—Fiscal year 1953—$732,000

These funds are necessary for continuation of the program of land purchase in the areas scheduled for early development. Funds will also be expended for related engineering, administration, and miscellaneous costs.

Part-time farm unit distribution system—Fiscal year 1953—$52,000

Construction of the part-time farm unit special distribution system in lateral area P–1 is to be completed during this fiscal year. Contracts for similar systems and lateral areas W–5, E–2, and E–5 are to be awarded, and the E–2 system will be completed. Funds will also be expended for necessary design, engineering, and administration.

PROTECTION OF RIVERBANK BY ARMOR ROCK

Recurring slides on the riverbanks immediately below Grand Coulee Dam have been a major problem since early in the construction period. Continuing studies by Bureau engineers and outside consultants have led to a conclusion that bank stabilization can be achieved only by armoring the lower slopes to prevent further erosion. This armoring is a portion only but a major portion of a comprehensive plan for channel improvement and shore protection at affected areas.

The record flood of 1948 pointed up the seriousness of the problem, and a consulting board of engineers and geologists was established to recommend a solution. Acting on the recommendations of the board, three major contracts have been awarded to carry out the principal parts of the protective program. In November 1949 a contract was awarded which included resloping the riverbanks and furnishing and placing additional riprap and armor rock above the water level. Another contract was let in September 1950 for river channel improvements consisting primarily of the placing of under-water slope protection in the form of riprap and armor rock. Another contract was awarded in June 1951 for the continuation and virtual completion of riprap and armor rock work so far as present needs are known.

The total cost of the protective riprap and armor rock work is now estimated to be approximately $5,000,000. Of this approximately $3,700,000 has been expended in direct payments to contractors through December 31, 1951. It is anticipated that the remaining expenditures will be incurred during fiscal year 1952. No additional work of this kind is presently programed for fiscal year 1953.

The schedule under which protective work is being done has been considerably expedited from the program originally contemplated. The increasing seriousness of the problem and the obvious saving to the Government of placing the protective rock as rapidly as possible resulted in reprograming armor rock placing from fiscal year 1953 to fiscal year 1952. Work originally programed for fiscal year 1952, which was deferred because of the emergency nature of the armor rock placing, has, in general, been reprogramed for accomplishment in fiscal year 1953.

Mr. JACKSON. When you do that, send me a copy.

BANK STABILIZATION PROBLEM

Now, pursuing this bank-stabilization problem, I understand that there is a problem in connection with the new laterals that you are putting in the basin area.

In other words, there has been a problem in connection with the sifting of the sands into the ditch proper and because sedimentation thereby developed in the large laterals of the canal.

USE OF CHEMICAL TO CONTROL EROSION

Now, I am told that there is a new type of chemical called Krilium that is effective in stabilizing the banks.

I would appreciate having any comment that you may care to make regarding that matter.

Mr. LINEWEAVER. Mr. Jackson, on that point, some time ago we were discussing it with the regional director who had been over there.

We have now in town some people from the project and we will be glad to have prepared for you that statement.

(The statement referred to is as follows:)

DEPOSITION OF WIND-BLOWN SOILS IN CANALS

The Bureau of Reclamation recognizes the problem caused by soil blowing from adjacent privately owned farms into irrigation canals on the lighter soil areas of the Columbia Basin, as well as other reclamation projects, when these soils are not properly managed. The Bureau of Reclamation, the State College of Washington, and the Soil Conservation Service have worked out jointly recommendations to farmers for controlling wind erosion. When this aim is accomplished it will not only aid in reducing the project farmers' operation and maintenance costs for cleaning the soil deposits from the canals but will also help maintain the fertility of crop land.

The banks of canals constructed through areas having light soils are also subject to blowing but the Bureau is taking the necessary steps to prevent this occurring. A light coating of gravel is being placed on the tops of the canal banks and grasses are seeded as rapidly as possible after construction is completed. The species of grasses and gravel-placement methods used are based on findings from trials made for this purpose in 1948 on the Pasco Unit.

The use of the new chemical formulation known as Krilium, recently developed by the Monsanto Chemical Co. for stabilizing soils, will also be investigated by the Bureau, in cooperation with State college experiment stations and other agencies, to determine its various adaptations to irrigation projects. It is planned particularly to determine its effectiveness in stabilizing ditchbank soils until grasses can become established. Since Krilium is a comparatively new product there is much to be learned regarding costs as well as what it will accomplish, how it should be applied, and the period of effectiveness. If the product proves useful for stabilizing the soils of cropland, and if it becomes economically feasible to employ, it may find a place on reclamation projects for farms having light soils.

Mr. LINEWEAVER. They are working on that experiment with cooperation of the chief engineer.

Mr. JACKSON. They are doing experimental work over there now, as I understand.

Mr. LINEWEAVER. Yes, sir; or planning for one. I do not think it is in effect yet.

Mr. JACKSON. I think I asked Mr. Clawson, Bureau of Land Management, about the same chemical and I think he is going to give us a statement, too.

I am particularly interested in the cost factor. Apparently they do have something now that is effective but it would be interesting

to find out just what the cost would be; inasmuch as that is quite relevant to the job of this committee.

Mr. EATON. And I suppose you would like to hear how long the effect lasts.

ENCOURAGING RESULTS FROM EXPERIMENTS WITH CHEMICAL

Mr. JACKSON. Yes. Well, I understand that this particular chemical will harden the surface and make it possible for grass to grow in addition. That information was given to me by some people who were in this business while I was out in the State. I do not know whether it is a fact or not and that is the reason I am asking the questions this afternoon, to find out whether or not those representations are correct.

Mr. EATON. In the case of one of the products being put out by a highly reputable supplier, the performance tests and the experimental information has been amazing, and it is very encouraging. We have had conferences with the representatives of the industry people who put it out and we will look into it further. Certainly, it is a very encouraging development along the lines of the two things that you have mentioned; that is, the cost and permanency.

Mr. JACKSON. I presume that it will take a little time to get a proper case history to make a determination on your part as to the feasibility, both from economic point of view and from its actual effectiveness, considering the job that has to be done.

Mr. EATON. Yes.

Mr. DIXON. I understand it costs only a dollar a pound.

CELEBRATION OF FIFTIETH ANNIVERSARY OF COLUMBIA BASIN PROJECT

Mr. JACKSON. Now, they are going to have a water festival this year in the Columbia Basin to commemorate the fiftieth anniversary of the commencement of the reclamation program which was started in 1902. Do you have any comment on that?

Mr. LINEWEAVER. Yes, sir, I will discuss that.

The Bureau of Reclamation will deliver the initial supply of water to the million-acre Columbia Basin project during the latter part of May 1952. In recognition of the importance of this event to the people of the Pacific Northwest, Gov. Arthur B. Langlie has appointed a seven-man committee to stage an appropriate celebration to herald this milestone. On this committee are representatives of the three Columbia Basin irrigation districts, the basin contractors, the Washington Columbia Basin Commission, the Washington State Advertising Commission, and the Department of the Interior. To indicate the widespread support of the festival by various interests in the State, the committee is being enlarged to approximately 20, including representatives of the State university, State college, grange, banks, fishing interests, private and public power, hotels, historical society, and other groups.

The committee, which has been organized into a nonprofit corporation has a budget of $150,000 to carry on the program, about half of which will be raised by donations from contractors, suppliers, and people interested in the future of the State and the other half from gate receipts to paid events. The only contribution being made

by the Bureau of Reclamation is participation in the planning and executionof the program, which assistance has been requested by the committee.

An 11-day festival is scheduled. The initial 4 days of the program will consist of the staging of an Aquarama on the Snake River at Pasco. By means of 30 beautiful floats the story of a free America will be told. The following day a pioneer town will be created at Quincy and a Great White Elephant sale of the most useless items from chambers throughout the Nation will be held. A 4-day Cavalcade of Free Men stressing the importance of free enterprise in America in a pageant based on the building of the Grand Coulee Dam, will be staged at Soap Lake. A Little World's Fair of 4-days running will be held at Ephrata. It will seek to educate the people concerning the importance of water-resource development.

A highlight of the affair will be the so-called farm-in-a-day, involving the transformation in a single day of an 80-acre piece of sagebrush covered land into a fully developed farm, with three bedrooms, fully furnished house, farm buildings, crops planted, and farm machinery provided. The farm, worth $50,000, will be given away to the Nation's most deserving veteran, being sought through a national search being conducted by a veterans' organization.

As I have noted, this is being financed by a seven-man committee appointed by the Governor and Bureau's participation is limited to just such assistance as they may require in the planning and execution of this program. The expenses will be handled entirely by the committee.

Mr. JACKSON. That is the local State committee?

Mr. LINEWEAVER. Yes, sir.

POWER PROJECTS CONTEMPLATED

Mr. JACKSON. Now, in view of the power shortage and the large prospective demand for defense power, could you give me a tabulation of all the power projects authorized but not under construction, as well as the potential power projects in which investigations are well advanced and could be completed promptly?

Mr. LINEWEAVER. Yes; we will have that for the record.

Mr. JACKSON. And also, the number of kilowatts to be developed as well as the number of years after the first appropriation that power would be available.

Mr. LINEWEAVER. Yes, sir; we will submit that for the record.

(The information requested is as follows:)

Authorized power projects and availability of power after initial appropriation for construction

State	Project	Name of plant	Ultimate capecity	Year after initial appropriation when power will be available
Colorado	Colorado-Big Thompson.	Big Thompson	6,700	Third.
Idaho	Minidoka	American Falls	30,000	Do.
Montana	Missouri River Basin	Kenil	1,600	Second.
Do	do	Little Porcupine	18,000	Fourth.
Do	do	Lyon	24,000	Second.
Do	do	Absaroka	50,000	Third.
Do	do	Portage	20,000	Second.

Authorized power projects and availabilty of power after initial appropriation for construction—Continued

State	Project	Name of plant	Ultimate capacity	Year after initial appropriation when power will be available
Montana	Missouri River Basin	Tiber	2,000	Fourth.
Do	do	Yellowtail	200,000	Do.
Do	do	Moorhead	8,000	Third.
Nebraska	do	Harlan	1,200	Second.
North Dakota	do	Crosby	48,000	Third.
Do	do	Des Lacs	60,000	Do.
South Dakota	do	Pony Hills	180,000	Seventh.
Utah	Weber Basin	Gateway	4,000	Third.
Do	do	Wanship	1,400	Do.
Do	do	Deer Creek	7,000	First.
Washington	Yakima-Kennwick	Chandler	12,000	Third.
Do	Yakima-Rosa	Rosa	10,000	Second.
Wyoming	Missouri River Basin	Bald Ridge	30,000	Do.
Do	do	Hunter Mountain	12,000	Third.
Do	do	Sunlight	20,000	Do.
Do	do	Thief Creek	60,000	Do.
Do	do	Tongue River	25,000	Second.
Do	do	Glendo	24,000	Fourth.

Potential power projects for which investigations are well advanced

Project	Approximate kilowatt capacity	Approximate years required to get power on line after initial construction appropriation
Snake River project, Idaho, Oregon:		
Hells Canyon division	900,000	6
Mountain Home division (Scriver Creek power facilities)	165,000	5
Grande Ronde project, Oregon, (Grande Ronde, Catherina Creek and Little Indian plants)	7,000	4
Michaud Flats project, Idaho (Eagle Rock plant)	40,000	4
Rogue River Basin project, Oregon, Union Peak division, Cascade Gorge unit	21,000	3
Central Valley project (ultimate plan), California, American River division, Union Valley unit	112,000	5
Kings River division, North Fork Kings unit	355,000	2
Sacramento River division, Sacramento canals unit (Mooney Island plant)	24,000	2
Trinity River division	210,000	3-4
Upper San Joaquin River division	400,000	4
Butte Valley project, California	28,000	4
Central Arizona project, Arizona, New Mexico:		
Bridge Canyon division	750,000	6
Other divisions	23,000	10
Dixie project, Utah	13,000	5
Marble Canyon project, Arizona	710,000	6
Washoe project, California, Nevada	21,000	5
Bear River project, Idaho, Utah	25,000	5
Animas-La Plata project, Colorado, New Mexico	45,000	6
Central Utah project, Utah, initial phase	61,000	6
Collbran project, Colorado	7,000	4
Colorado River storage project, Green division:		
Echo Park unit	200,000	5
Flaming Gorge unit	72,000	6
Split Mountain unit	100,000	5
Gunnison division:		
Curecanti unit	54,000	6
Whitewater unit	48,000	4
Middle River division, Glen Canyon unit	800,000	6
San Juan division, Navajo unit	30,000	6
Nueces River power project, Texas	15,000	5
San Juan-Chama project, New Mexico	298,000	7
Fryingpan-Arkansas project, Colorado (formerly called Gunnison-Arkansas project, Roaring Fork division, initial phase)	105,000	6
Blue-South Platte project, Colorado	266,000	6
Lake Dorothy project, Alaska	30,000	4
Blue Lake project, Alaska	15,000	3
Wickersham project, Alaska	35,000	6
Swan Lake project, Alaska	13,000	4

INVESTIGATION OF ADDITIONAL POWER PLANT

Mr. JACKSON. As I understand it you are now doing some advance engineering on this proposed third powerhouse.

Mr. LINEWEAVER. Mr. McPhail will make a statement on that, Mr. Jackson.

Mr. MCPHAIL. Mr. Jackson, we are conducting investigations on the third power plant at Grand Coulee Dam and have presented to the committee some advance copies.

Mr. JACKSON. Yes; I have a copy of it. I do not know what you would call it but it is an investigation of the third power plant at Grand Coulee Dam, Columbia Basin project, which appears to be a preliminary report. Is that correct?

Mr. MCPHAIL. I think the way to say it is that it is an actual investigation to determine where the plant should be located and how many units it should provide for.

LOCATION OF POWERHOUSE

Mr. JACKSON. Now, I understand that you propose that one approach tunnel should commence at a distance back of Grand Coulee Dam, in Franklin D. Roosevelt Lake, which would flank the western side of the dam, including the pumping plant and which would come out below the dam a short distance below the city. Is that right, Mr. MCPHAIL?

Mr. MCPHAIL. Yes. In fact, it would be just at the lower part of the city and would involve, perhaps, the removing of three or four houses.

Mr. JACKSON. I see. Now, that would be the location of the powerhouse?

Mr. MCPHAIL. That is right; the powerhouse would be located at that point. The intake works would be above the pumping plant.

LOCATION OF INTAKES

Mr. JACKSON. Yes; and the proposed intakes I note, from your preliminary report, would be in the Crescent Bay area, with an alternate intake below the Crescent Bay, below the dam proper.

Mr. MCPHAIL. That is right. Crescent Bay offers the advantage of being able to make use of an old roadway as a cofferdam which would permit the work to be done without substantially lowering the water in the lake itself. There are two possible alternatives, one on the west and one on the east side of the river, which would involve lowering of the lake.

Mr. JACKSON. Yes; and you have referred to them in the report. For the sake of keeping the record straight, the first proposal, with alternates, is known as scheme A on the left or west bank, and scheme B on the right bank or east bank. Would you state what that latter proposal involves?

Mr. MCPHAIL. That proposal involves a very much shorter tunnel. with the power plant located with one end almost at the present right power plant and the other end close to the present right switchyard area. The excavation involved would go into the present switchyard area and would make it necessary to move the switchyard to some other location.

Mr. JACKSON. You have somewhat of a bank problem; a certain element of instability.

Mr. MCPHAIL. Yes, sir; during the construction period.

Mr. JACKSON. I see. There is a certain element of instability on that side.

Mr. MCPHAIL. That is right.

Mr. JACKSON. Would you get as much power, offhand from scheme B as you would from scheme A?

Mr. MCPHAIL. Yes, sir, there would not be any difference.

COMPARATIVE ADVANTAGES OF TWO SCHEMES

Mr. JACKSON. There would not be any difference in that regard?

Mr. MCPHAIL. No, sir.

Mr. JACKSON. And scheme B might cost less because of the shorter distance?

Mr. MCPHAIL. It might.

Mr. JACKSON. If you could be sure of the geological situation.

Mr.MCPHAIL. Well, it involves moving a great deal more earth and we do have a problem of sliding slopes.

It would also involve moving the switchyard.

ADDITIONAL POWER FROM PLANT

Mr. JACKSON. Now, what is a rough estimate at this stage of the study of the amount of power that should be added by the third powerhouse?

Mr. MCPHAIL. That is indefinite, it depends——

Mr. JACKSON. First, assuming the present storage that has been authorized, such as Albeni Falls and Hungry Horse.

Mr. MCPHAIL. Well, Hungry Horse is required substantially to firm up the last three units at Grand Coulee. Albeni Falls will add a little bit but not a great deal above what we now have.

So, initially, the larger part of this development would be of seasonal nature but as additional storage developed upstream, the amount of prime power would be increased quite rapidly.

Mr. JACKSON. How many feet would you need?

Mr. MCPHAIL. Well, roughly, 1 million to 3 million acre-feet per 100,000 kilowatts which varies with the units installed.

UNITS IN POWERHOUSE

Mr. JACKSON. How many units would you put in the third powerhouse?

Mr. MCPHAIL. Well, in my opinion, and it is only an opinion at this time, I think probably 9 or 10.

Mr. JACKSON. Nine or ten units?

Mr. MCPHAIL. Yes, sir.

Mr. JACKSON. You now have nine in each?

Mr. MCPHAIL. We now have nine in each plant.

Mr. JACKSON. So this would be one-third again as much?

Mr. MCPHAIL. One-half again as much.

CAPACITY OF GENERATORS

Mr. JACKSON. One-half again as much, that is right. What is the rated capacity of the generators?

Mr. MCPHAIL. The nameplate rating is 108,000 kilowatts but we have found by trial that they are capable of at least 120,000 kilowatts per unit.

ADDITIONAL POWER NEEDED

Mr. JACKSON. Well, I hope that you will pursue this probability with expedition in view of the great power demand that we have. It seems to me that we have a good opportunity to add a tremendous amount of power at Coulee as the result of this. I mean if we construct a third power unit. It is quite clear that this third unit is feasible, especially if progress can be made on up-river storage.

Mr. MCPHAIL. I do not think there is any question about it, that this will provide, when combined with other storage, power at perhaps lower cost than anywhere else in the Northwest.

Mr. JACKSON. I mean, it is cheaper than going out and building an entirely new dam because you have your storage facilities at the dam already constructed and available and it is a matter of maintaining a proper flow into the Franklin D. Roosevelt Lake over a 12-month period so that you could add to your capacity; but at the present time you could utilize this excess water that is going over the dam during the summer months, is that not correct?

Mr. MCPHAIL. That is correct.

Mr. JACKSON. And by the time you have completed the third power plant you should have some additional storage up river.

Mr. MCPHAIL. It is probable.

CONSTRUCTION TIME DEPENDS ON AVAILABILITY OF MATERIALS

Mr. JACKSON. What is a rough estimate of the construction time for scheme A where you have a lot of tunneling?

Mr. MCPHAIL. Well, the limitation primarily would be in securing the material. It would require somewhere in the neighborhood of 3 years for delivery of generating equipment and considering that as the critical time, then the total time would be something approaching 4 years.

Mr. JACKSON. Well, I hope, Mr. McPhail, that you can speed up the engineering on this thing, perhaps with a supplemental, because it is going to take some time if you get an order in to get your critical materials. There is not much point pursuing the construction, or I mean the rock work and all that unless you can get your order in on generators and turbines and so on.

Mr. MCPHAIL. That is correct, Mr. Jackson, and we hope to push this as much as possible, and I think it can be done very rapidly.

FUNDS REQUESTED FOR INVESTIGATION OF THIRD POWERHOUSE

Mr. LINEWEAVER. Mr. Jackson, before you leave that, I would like to point out that there is an item of $125,000 in the present estimate for pursuing the investigation of the third powerhouse.

Mr. JACKSON. Is that in the Columbia Basin budget or in the general investigation?

Mr. LINEWEAVER. In the Columbia Basin project estimate.

Mr. JACKSON. That is part of the Columbia?

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. Well, I hope that we can speed this matter along because I think, from the standpoint of economy, that this offers one of the best opportunities we have of getting cheap hydropower.

This country is facing a national power shortage, not just in the Northwest, but generally throughout the United States. We are in pretty bad shape and we need not remind our people of the critical importance of power in relation to national defense.

Mr. LINEWEAVER. The Bureau, with the approval of the Secretary, considers the third powerhouse an authorized extension of the Columbia Basin project.

THIRD POWERHOUSE WILL PAY OUT

Mr. JACKSON. Well, there is not any doubt about this third powerhouse being capable of paying out, so to speak, isn't that right?

Mr. LINEWEAVER. That is Mr. McPhail's opinion; yes, sir.

Mr. MCPHAIL. That is correct. I think that the costs will be so low per kilowatt that by comparison this particular development has a much better chance to pay off than any other on the river.

Mr. JACKSON. As a matter of fact, the whole project at Coulee Dam itself is turning out cheaper power per kilowatt than any power plant in the United States.

Mr. MCPHAIL. I believe so.

Mr. JACKSON. And while it follows that the cost will be more because of higher construction costs, you do have the advantage of having an installation already in being and you merely have to make certain additions to that structure in order to utilize further potentials that exist in the very nature of the dam and the Columbia River as a whole.

Mr. MCPHAIL. That is correct.

LAND UNDER IRRIGATION

Mr. JACKSON. Now, the present current budget will bring water to 67,000 acres, is that right?

Mr. MARKWELL. 66,000.

Mr. JACKSON. How many acres do you plan to have under water this year, calendar year?

Mr. MARKWELL. This 66,000 which we want to bring in this year, and some 6,000 in the Pasco and Burbank areas, will make a total a little over 70,000.

Mr. JACKSON. That is water that will be in use this year—I thought that this 66,000 figure is the water potential you will have but you do not have that much under irrigation this year.

Mr. MARKWELL. Well, that land will be available for irrigation. Of course, it is not possible to predict whether or not the owners of the land, all of them, will take water.

Mr. JACKSON. That is right.

Mr. MARKWELL. We anticipate a very large proportion of them will take water.

Mr. JACKSON. Will you put a statement into the record as to the amount of acreage under water at the present time and what you anticipate will be in use the end of the calendar year?

Mr. MARKWELL. Yes, sir.

(The information requested is as follows:)

Completed distribution facilities of the Columbia Basin project were capable of serving approximately 6,700 acres in the Pasco and Burbank units during calendar year 1951. Distribution facilities completed last fall or to be completed this spring will permit serving an additional 66,000 acres during the 1952 irrigation season, and facilities to be completed during the balance of this year or early next year will provide service to an additional 60,000 acres during the 1953 irrigation season.

ADDITIONAL IRRIGATION PROVIDED FOR IN REQUEST

Mr. JACKSON. How much acreage will you be able to put under irrigation in fiscal year 1953 as provided in your budget which is now before the committee?

Mr. LINEWEAVER. Approximately 65,000 additional acres.

Mr. JACKSON. Additional?

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. And how does that run, through the next 5 or 6 years?

Mr. LINEWEAVER. There is a program, Mr. Jackson, extending over the next 3 or 4 years that we have submitted to the Bureau of the Budget and this committee that calls for an average of about 43,000 to 50,000 acres annually.

Mr. JACKSON. Each year?

Mr. LINEWEAVER. For the next 4 years, yes, sir—a total of 200,000 to 250,000 acres.

Mr. JACKSON. For the next 4 years?

Mr. LINEWEAVER. Yes, sir.

IRRIGATION REQUEST NEXT YEAR

Mr. JACKSON. What will your budget request be next year on this item? You had a breakdown one time on that on the costs, exclusive—you will have the dam pretty well cleaned up by that time. What is the breakdown of the irrigation for fiscal year 1954, to keep it on schedule?

Mr. LINEWEAVER. The irrigation estimate for 1954?

Mr. JACKSON. Yes.

Mr. MARKWELL. The irrigation will be about $16,000,000 or $17,000,000.

Mr. JACKSON. For 1954?

Mr. MARKWELL. Yes, sir. The total amounts are shown under control schedule.

Mr. JACKSON. What page?

Mr. MARKWELL. 375; the full schedule on 376.

Mr. JACKSON. For the fiscal year 1953 you have $21,000,000 for the total operation and in 1954 I see it is $19,000,000, and in 1955 it is $8,000,000—I am just giving it to you roughly.

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. And for 1956 it is $5,000,000, and in 1957 it is $8,000,000, and in 1958 it is $7,000,000, the odd figures being excluded.

Mr. MARKWELL. Yes, sir.

Mr. JACKSON. That is all.

Mr. NORRELL. Mr. Jensen.

VETERAN PREFERANCE IN PURCHASING LAND

Mr. JENSEN. Is it correct that veterans have preference on this land?

Mr. LINEWEAVER. In the purchase of the land, yes, sir.

Mr. EATON. They do.

Mr. JENSEN. I notice some hesitancy in your reply to the question.

Mr. EATON. I am sorry you had the impression from the reply which was made. I assure you we have many, many times more qualified veteran applicants with the requisite experience and financial qualifications and so on, many, many times the number of farm units that we have to sell to them. The applicants exceed the farms. We may have from 8 to 10 applicants who would like to buy a farm and only one of them will get the farm.

Mr. JENSEN. Well, I knew that was the case, up to this time at least. I do not know how I got the impression that you were having trouble getting applicants.

Mr. EATON. We have a lot of qualified applicants, sir.

Mr. JENSEN. Now, for a veteran to get started on this land costs a lot of money, does it not?

Mr. EATON. Yes, sir.

Mr. JENSEN. And they need a lot of equipment. How are they financed?

Mr. EATON. Exclusive of the cost of the land itself on which they contract. They have a 20-year period during which they can pay out the purchase price of the land to the Government.

FINANCIAL QUALIFICATIONS REQUIRED TO PURCHASE LAND

The qualifications include that the purchaser must have at least $4,500 in cash or liquid assets in order to be considered.

In addition, we have an excellent cooperative program with the Farm Settlement Administration of the Department of Agriculture and the local board of examiners works with the program to assist in financing improvements and livestock and similar things under their regular program.

Mr. JENSEN. The veteran has to have $4,500 of his own money before he can qualify?

Mr. EATON. Yes, sir. He has to have that in order to be considered by the local board of examiners.

Mr. JENSEN. Of the Farm Home Administration?

Mr. EATON. No, sir; the Bureau of Reclamation.

Mr. JENSEN. I see.

Mr. EATON. That is a higher cash requirement than has been established on our public land and was arrived at through the advice of the local farmers and the College of Agriculture of the State of Washington; they considered that a man ought to have that much cash to see him and his family through for their living in the country until the income starts rolling in from the crops.

Mr. JENSEN. I would guess that the majority of veterans are foreclosed, because I doubt if there is over 10 percent of them that have $4,500 cash in pocket. Do you not find that to be true?

Mr. EATON. The reports that we received so far have indicated that very few of the applicants who are otherwise qualified have difficulty

in demonstrating that they had that amount of cash position. Now, perhaps that suggests that the fellows that do not have it do not even apply.

Mr. JENSEN. That is right.

Mr. EATON. Most of them are from farm families.

Mr. JENSEN. From that vicinity?

Mr. EATON. They come from all over the United States but almost all of them are from farm families—well, I guess all of them are, because they have to have farm experience in order to qualify. Also, a lot of these young fellows have got a pretty fair interest in the old home place and they have equipment and the equipment is included in the requirement, the value of any equipment they have. For example, if they own a tractor or a threshing machine, that is all part of the cash, what we call cash assets.

Mr. JENSEN. Well, I can see that it would be a great mistake to put a family on the land without enough money to buy bread and beans until the crop comes in. That is all.

PRESENT STATUS OF TOWN SITES

Mr. JACKSON. Mr. Chairman, I wonder if Mr. Lineweaver could put a statement in the record regarding the present status of the town sites.

Mr. LINEWEAVER. Yes, sir. The matter of town sites has been postponed for further study and consultation with the existing towns on the basin, the irrigation districts, and other people concerned, and a statement will be inserted.

(The information requested is as follows:)

TOWNSITE AND COMMUNITY PLANNING

The authority for the establishment of town sites on the Columbia Basin project is contained in section 4(a) of the act. Townsite planning was first started as problem 18 of the Columbia Basin joint investigations. These studies, based on a survey of town requirements on similar irrigated areas in the Northwest, have disclosed the need for additional towns to serve the requirements of new settlers on the project. The project maintains a limited staff assigned to project development activities including the planning of future townsites. Considerable assistance has already been given to existing towns, particularly the town of Quincy, in planning for future expansion and development. In addition, this staff has been cooperating with the Farmers Home Administration and other Federal and State agencies on the problem of supplying domestic water to project settlers. The budget for fiscal year 1953 includes an item of $15,000 which will be allocated to townsite planning. This planning will include an active program of consultation with the irrigation district boards and representatives of existing project towns and civic organizations to keep them fully informed of our objectives, plans and programs with respect to townsite development. Assistance will be given to existing towns in planning for future expansion and development occasioned by the influx of new settlers to the project area and will also plan for the development of additional townsites consistent with the future project requirements.

LAW PASSED BY STATE LEGISLATURE

Mr. JACKSON. Am I correct in understanding that the State law passed by the State legislature in connection with the Columbia Basin Commission Act makes provision for the setting up of accounts?

Mr. LINEWEAVER. Yes, sir, I think you are correct in that. I will insert that section of the law.

Mr. JACKSON. I will appreciate your giving us that statement and making it as complete and up to date as possible.

Mr. LINEWEAVER. Yes.

(The statement referred to is as follows:)

Section 4 of the Columbia Basin Project Act gives express authority to the Secretary of the Interior to establish town sites on lands withdrawn or acquired in connection with the development of the Columbia Basin project. It was considered necessary in connection with the Columbia Basin Project Act to obtain the enactment of companion legislation by the State of Washington. Accordingly, concurrently with the enactment of the Columbia Basin Project Act there was presented to the State legislature and enacted by it legislation that was to a large extent parallel to the Federal act. While the State act does not deal specifically with the establishment of townsites by the Secretary of the Interior, there was by means of section 15 of that act an adoption and a ratification to all the provisions of the Columbia Basin Project Act insofar as the provisions of the latter Act were within the scope of State jurisdiction or authority.

UNOBLIGATED BALANCES AND STATUS OF FUNDS

Mr. NORRELL. At this time, there are two statements that I wish you would insert in the record.

One is the most recent estimate of unobligated balances on June 30, 1952.

Second, a tabulation of the status of various funds as of December 31, 1951.

Mr. LINEWEAVER. Yes, sir, we will insert those in the record.

(The statements referred to are as follows:)

Unobligated construction and rehabilitation funds at June 30, 1952, estimated through Dec. 31, 1951

FISCAL YEAR 1953 APPROPRIATION STATUS AND PROJECT

	Submitted to Congress Nov. 30, 1951	Field estimate Dec. 31, 1951
FUNDS REQUESTED		
W. C. Austin	0	0
Boulder Canyon:		
All-American Canal system:		
Coachella division	$1,209,362	$1,044,592
Imperial division	0	0
Buffalo Rapids:		
First division	246,000	246,000
Second division	0	0
Cachuma	0	0
Central Valley	5,498,808	4,805,020
Central Valley, Kern River	26,085	26,085
Colorado-Big Thompson	0	0
Colorado River F. W. & L. S.	0	0
Columbia Basin	355,000	0
Davis Dam	1,528,661	1,528,661
Eden	0	0
Eklutna	0	5,000
Gila	0	0
Hungry Horse	0	0
Kendrick	0	0
Klamath	64,174	64,174
Missouri River Basin	8,411,174	8,691,932
Palisades	0	0
Provo River	0	0
Rehabilitation and betterment	246,343	246,343
Rio Grande, Elephant Butte power division	11,118	11,118
Riverton	120,000	120,000
Shoshone	76,651	81,651
Sun River, Greensfields division	5,000	5,000
Tucumcari	0	0
FUNDS REQUESTED—CON.		
Yakima- Roza division	$45,500	$45,500
Subtotal	17,843,876	16,921,076
FUNDS NOT REQUESTED		
Arnold	0	0
Boise, Anderson Ranch	276,058	276,058
Boise, Kuna	44,242	39,242
Boise, Payette	215,000	215,000
Boulder Canyon, Hoover Dam and power plant	375,000	375,000
Buford-Trenton (W. C. U.)	0	0
Carlsbad	0	0
Central Valley, Kings River	35,556	35,556
Deschutes, north unit	352,264	330,218
Fort Peck	321,000	361,000
Fort Sumner	0	10,000
Grants Pass	0	0
Lewiston Orchards	10,911	10,911
Mancos (W. C. U.)	0	0
Middle Rio Grande	0	0
Milk River, Fresno Dam	0	0
Minidoka, Gooding division	36,153	36,153
Missoula Valley (W. C. U.)	0	0
Ochoco	334,383	334,383
Paonia	208,476	208,476
San Luis Valley	525,163	519,379
Vermejo	[1] 225,000	225,000
Inactive projects	1,175,731	1,175,731
Adjustments	−318,000	
Subtotal	3,816,937	4,152,107
Total	21,660,813	21,073,183

[1] Includes budgetary reserve.

Unobligated construction and rehabilitation funds at June 30, 1952, estimated through Dec. 31, 1951—Continued

MISSOURI RIVER BASIN PHASE AND DIVISION OR UNIT

	Submitted to Congress Nov. 30, 1951	Field estimate Dec. 31, 1951
PHASE A		
Big Horn Basin division: Owl Creek unit	$705,000	$705,000
Bostwick division	0	0
Boysen division: Boysen unit	249,160	381,000
Cannonball division: Cannonball unit	215,000	215,000
Cheyenne division: Angostura unit	50,000	0
Keyhole unit	305,000	305,000
Frenchman-Cambridge division	0	0
Grand division: Shadehill unit	67,000	64,000
Heart division: Dickinson unit	12,000	12,000
Heart Butte unit	435,000	435,000
Helena-Great Falls division: Canyon Ferry unit	0	0
Lower Big Horn division: Yellowtail unit	100,000	100,000
Marias division: Lower Marias unit	0	0
Missouri-Souris division: Jamestown unit	0	0
Missouri diversion unit	470,000	470,000
Moreau River division: Bixby unit	85,234	100,000
North Dakota pumping division: Fort Clark unit	0	0
Oregon Trail division: Glendo unit	150,000	200,000
Kortes unit	0	0
Smoky Hill division: Cedar Bluff unit	1,885,669	1,885,669
Solomon division: Kirwin unit	0	0
PHASE A—continued		
South Platte division: Narrows unit	$50,915	$100,915
Three Forks division: Crow Creek pump unit	0	0
Transmission division: Region 6—Big Horn district	32,158	32,158
Yellowstone district	108,000	108,000
Region 7—N. Platte River area	300,000	300,000
Upper Republican division: St. Francis unit	1,461,667	1,485,667
Yellowstone division: Cartwright unit	29,200	29,200
Sadie Flat unit	0	0
Savage unit	0	0
Sidney unit	17,298	17,298
Subtotal, phase A	6,728,301	6,945,907
PHASE B		
Region 6	1,103,000	978,000
Region 7	289,337	288,326
PHASE C		
Region 6	[2] 240,536	258,000
Region 7	[2] 50,000	199,144
PHASE D		
Region 6	----------	22,555
Region 7	----------	0
Total, Missouri River Basin	8,411,174	8,691,932

[2] Includes phase D.

Status of current funds as of Dec. 31, 1951, for projects or activities for which funds are requested in fiscal year 1952

Project or activity	Funds available [1]	Unliquidated obligations	Unobligated balance	Unexpended balance [2]
General investigations	$5,004,710	$307,961	$2,605,133	$2,913,094
Construction and rehabilitation	225,052,025	96,831,397	88,230,122	185,061,519
Allotments:				
Eklutna	5,762,280	2,471,674	1,513,570	3,985,244
Gila	7,077,399	2,101,152	3,233,461	5,334,613
Boulder Canyon-All American Canal system	3,469,221	15,827	3,204,866	3,220,693
Davis Dam	9,323,178	4,364,399	4,981,712	9,346,111
Cachuma	10,372,204	6,175,723	2,538,435	8,714,158
Central Valley	34,946,282	12,121,666	18,187,992	30,309,658
Kern River	93,585	54	66,381	66,435
Colorado-Big Thompson	21,536,482	11,634,106	3,728,489	15,362,595
Palisades	2,205,422	1,353,535	655,990	2,009,525
Buffalo Rapids, first	352,350	226	328,201	328,427
Buffalo Rapids, second	94,585	7,909	77,941	85,850
Hungry Horse	22,253,428	12,984,874	1,655,034	14,639,908
Sun River	40,984	4,814	18,909	23,723
Tucumcari	220,444	7,509	126,572	134,081
Rio Grande	1,291,782	710,205	215,063	925,268
W. C. Austin	178,740	22,338	128,865	151,203
Klamath	578,787	199,296	340,438	539,734
Provo River	2,786,072	1,013,230	189,612	1,202,842
Columbia Basin	27,261,734	10,483,276	7,243,175	17,726,451
Yakima-Roza	111,422	22,606	73,044	95,650
Eden	1,900,000	664,044	984,286	1,648,330
Kendrick	2,827,058	1,385,337	1,051,239	2,436,576
Riverton	1,771,247	708,141	646,719	1,354,860
Shoshone	541,003	84,761	384,342	469,103
Colorado River front work and levee system	1,574,557	629,780	761,708	1,391,488
Rehabilitation and betterment of existing projects	3,569,471	1,020,500	1,753,070	2,773,570
Missouri River Basin	62,912,308	26,644,415	34,141,008	60,785,423
Operation and maintenance [3]	16,656,614	625,762	8,851,855	9,477,617
Allotments:				
Parker-Davis	2,421,117	103,282	1,466,086	1,569,368
Yuma	323,742	10,481	189,960	200,441
Central Valley	2,304,884	190,284	1,107,917	1,298,201
Colorado-Big Thompson	840,300	25,800	308,741	334,541
Boise	422,273	9,180	258,629	267,809
Minidoka	410,086	24,788	218,082	242,870
North Platte	305,279	11,403	112,403	123,806
Rio Grande	1,366,843	30,584	496,400	526,984
Deschutes	180,000	7,739	98,705	106,444
Klamath	564,215	4,259	314,357	318,616
Columbia Basin	2,386,600	56,079	1,421,086	1,477,165
Yakima	515,600	20,781	310,871	331,652
Kendrick	568,600	9,481	298,234	307,715
Riverton	258,904	604	195,588	196,192
Shoshone	286,730	8,506	151,830	160,336
Soil- and moisture-conservation operations	757,100	25,792	431,774	457,566
Colorado River front work and levee system	1,073,000	27,394	552,983	580,377
Boulder Canyon	1,671,341	59,325	918,209	977,534
General administrative expenses	5,481,679	109,156	2,584,976	2,694,132
Emergency fund, irrigation and power systems	753,510	392,332	325,540	717,872
Total, items for which funds requested in 1953	252,948,538	98,266,608	102,597,626	200,864,234
Total, items for which no funds requested in 1953	12,558,769	5,244,532	10,820,692	16,065,224
Grand total, all items	265,507,307	103,511,140	113,418,318	216,929,458

Source: Report on Status of Appropriations S. F. 133, prepared in accordance with Budget-Treasury regulation No. 1.

Status of current funds as of Dec. 31, 1951, for projects or activities for which no funds are requested in fiscal year 1953—items for which no funds requested in 1953

Project or activity	Funds available [1]	Unliquidated obligations	Unobligated balance	Unexpended balance [2]
Construction and rehabilitation	$11,669,295	$5,221,854	$10,314,495	$15,536,349
Boise:				
Anderson ranch	566,876	113,033	455,906	568,939
Kuna	49,488		49,393	49,393
Payette	533,720	435,347	371,240	806,587
Boulder Canyon-Hoover Dam	3,009,328	2,783,420	922,446	3,705,866
Carlsbad	1,346		515	515
Deschutes-North Unit	692,874	120,590	501,695	622,285
Fort Peck	1,771,119	928,069	1,307,730	2,235,799
Fort Sumner	70,914	11,077	44,365	55,442
Kings River	63,556		55,300	55,300
Lewiston Orchards	36,769	9,709	21,796	31,505
Middle Rio Grande	1,463,000	404,386	621,937	1,026,323
Milk River-Fresno Dam	25,585	100	20,480	20,580
Minidoka	43,653	325	38,060	38,385
Ochoco	351,465	50	337,071	337,121
Owyhee		83		83
Paonia	246,664	2,585	216,801	219,386
Parker Dam power	21,858		22,593	22,593
Pine River	9,727		10,043	10,043
San Luis Valley	739,745	3,622	700,922	704,544
Valley gravity	815,743		815,743	815,743
Vermejo	285,000	4,921	236,522	241,443
Water conservation and utility	23,999	2,191	10,534	12,725
Water conservation and utility (Eden)	42,976	7,569	2,272	9,891
Inactive projects	323,712		324,726	324,726
Regional CPA and Denver office:				
(Transfer from projects)	[4] (9,540,137)	394,777	3,226,405	3,621,182
Advances from outside agencies	480,178			
Operation and maintenance	889,474	22,678	506,197	528,875
Orland	103,286	2,249	45,350	47,599
Mancos	10,695	92	6,960	7,052
Pine River	4,754	68	1,110	1,178
Missoula Valley	2,721		1,641	1,641
Milk River	82,255	868	23,644	24,512
Carlsbad	12,013	492	5,249	5,741
W. C. Austin	125,014	363	32,037	32,400
Umatilla	23,531	50	18,083	18,133
Vale	3,492	518	991	1,509
Belle Fourche	7,634	18	5,220	5,238
Rapid Valley	8,233	116	5,528	5,644
Balmorhea	404		424	424
Ogden River	28,534		28,534	28,534
Owyhee [5]	460,000	17,804	249,150	266,954
Rathdrum Prairie	4,288		1,783	1,783
Provo River	10,500	40	6,146	6,186
Sun River	2,120		744	744
Regional CPA and Denver office: (transfer from projects)	[4] (470,093)		73,603	73,603
Total	12,558,769	5,244,532	10,820,692	16,065,224

[1] Excludes contract authorizations.
[2] Unexpended balance is based on total funds available less expenditures through Dec. 31, 1951, recorded on an accrual basis. The unexpended balance shown here will differ from the Treasury statement prepared on a check-issued basis by the amount of accounts payable and vouchers in transit to disbursing office.
[3] Includes funds advanced by water users treated as appropriation reimbursements in accordance with provision contained in the 1952 appropriation act. Projects financed exclusively from advanced funds are included in "Items for which no funds are requested in 1953."
[4] Not included in total.
[5] Financed by appropriation in fiscal year 1952, to be financed in fiscal year 1953 by water users' advances

YAKIMA PROJECT, WASHINGTON, ROZA DIVISION

Mr. NORRELL. We will now move on to the Yakima project, Washington, Roza division.

The allotment for 1952 is $48,600 and the estimate for 1953 is $106,000.

Pages 377 through 381 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$23,451,555
Total obligations to June 30, 1951		20,965,044
Allotment, fiscal year 1952	$48,600	
Prior year balance available	62,822	
Balance available in subsequent year	−45,500	
Total obligations, fiscal year 1952		65,922
Allotment, fiscal year 1953	$106,000	
Prior year balance available	45,500	
Total obligations, fiscal year 1953		151,500
Balance to complete		2,269,089

JUSTIFICATION OF ESTIMATE

Authorization.—On November 6, 1935, the President approved a finding of feasibility submitted by the Secretary of the Interior under the provisions of the Fact Finders Act of December 5, 1924 (43 Stat. 672).

Location.—The Yakima project is located in south central Washington in Yakima and Benton Counties. Roza division works extend southeasterly from a point 8 miles north of Yakima to 15 miles east of Prosser.

Description.—The primary purpose of the Roza division is to provide full water supply for irrigation of 72,000 acres (45,000 acres by gravity flow and 27,000 acres by pumping) of semi-arid land lying in a long narrow strip on the eastern slope of the Cascade Mountains in the south central section of the State. Facilities of the division include the Roza diversion dam, 95 miles of main canal, an extensive lateral distribution system, seven wasteways, and seventeen major pumping plants. The power system includes the Roza switchyard, 62 miles of 34.5-kilovolt transmission line serving the pumping plants and the proposed 10,000-kilowatt Roza power plant. A water supply contract calls for annual delivery of 375,000 acre-feet, to the extent that such delivery can be made out of the available natural flow and storage facilities of the Yakima project. Provision was made in the first 11 miles of the main canal, at a cost of approximately $1,000,000 for additional capacity of 965 cubic feet per second to serve the proposed power plant. The division is designed to furnish a water supply for 72,000 acres of land and to have an installed power capacity of 10,000 kilowatts.

Repayment.—Two contracts have been executed with the Roza irrigation district water users—one for repayment of the district's share of the project storage works for $2,500,000, and the other for repayment of the construction costs of all the Roza division facilities amounting to $21,000,000. The latter contract has alternate provisions for handling of construction and operation and maintenance costs of the power facilities. Negotiations are now proceeding on drawing up of an amendatory repayment contract which will include more definite provisions relative to power facilities and revised scheduling of repayment costs.

Status.—Construction began on January 28, 1936. As of June 30, 1952, the division will be approximately 90 percent complete. The entire irrigation system is complete and water is available to all the acreages. Construction on the drainage program will be continuing and collection of field design data for additional drainage construction will be under way. Installation of domestic water systems for the gravity and pump areas' residences will be completed, and subsealing of sections of the main canal will be in progress in fiscal year 1952.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes continuation of the drainage construction program in areas where comprehensive field investigations show the need is the greatest and for subsealing a portion of the main canal near Pomona.

Justification.—The need for irrigation water and power in this area has become increasingly more acute since construction was authorized due to present world conditions, increased population, and the proximity to the Hanford atomic energy plant.

All the primary irrigation facilities are completed and the remaining features should be finished as speedily as possible to avoid excessive costs. Early construction of drainage facilities is necessary to prevent damage to and loss of existing farm acreage. Subsealing work on canals is necessary to provide a safe operating irrigation system and to prevent damage to adjacent lands.

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program, budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Allocation of project storage	$2,500,000	$2,500,000			
Roza diversion dam and headworks	1,024,269	1,020,269	$4,000		
Pumping plants and discharge lines	2,417,788	2,400,588	17,200		
Main canal: Headworks to power plant	3,360,000	3,325,277	23,500	$11,223	
Main canal and wasteways: Power plant to end	7,121,934	7,055,539	66,395		
Laterals and pipelines:					
Gravity areas	1,187,445	1,177,445	10,000		
Pump areas 1–9, 9A, 10 and 12–17	1,379,805	1,365,009	14,796		
Laterals:					
Terrace heights pump area	11,974	11,974			
Special pump areas	49,796	48,996	800		
Pump operators' residences	164,327	154,327	10,000		
Gravity area residences	70,796	65,796	5,000		
Drainage work completed prior to fiscal year 1951	90,450	90,450			
Grandview area: Drain No. 1	28,797	2,630	26,167		
Moxee area: Extension drain A and side drains	2,725	2,025	700		
Observation wells	3,335	2,600	735		
Other drainage work as required	146,550	10,741	532	135,277	
Farm unit development	118,453	114,753	3,700		
Roza power plant	2,342,000	54,789			$2,287,211
Substations: Pumping plants 1–9, 9A, 10 and 12–17	253,720	252,720	1,000		
Terrace Heights substation	8,988	8,988			
East Selah substation	10,582	10,087	495		
Roza switchyard and substation	217,000	189,363	27,637		
Transmission lines: 34.5 kilovolt, 13.8 kilovolt and 2.4 kilovolt area 13	411,124	408,624	2,500		
Communication equipment: Telephone	68,897	68,897			
Roza irrigation district headquarters	162,000	151,507	10,493		
Total cost	23,152,755	20,493,394	225,650	146,500	2,287,211
Construction facilities				3,000	−3,000
Stores		12,315	−9,353		−2,962
Project investigations		121,062	−120,464	2,000	−2,598
Operation and maintenance during construction	124,404	124,404			
Transfers, credits, and other expenditures	174,396	184,788	−4,830		−5,562
Total expenditures	23,451,555	20,935,963	91,003	151,500	2,273,089
Unliquidated obligations		29,081	−25,081		−4,000
Total obligations	23,451,555	20,965,044	65,922	151,500	2,269,089
Method of financing:					
Allotment, fiscal year 1952			48,600		
Prior year balance available			62,822	45,500	
Balance available in subsequent year			−45,500		
Allotments required				106,000	2,269,000

DRAINAGE PROJECT

Mr. NORRELL. Will you discuss this project briefly. I believe that it is a drainage project; and will you tell us why it cannot be deferred during the emergency?

Mr. MARKWELL. That is correct, Mr. Chairman; it is a drainage project. I want to make a brief statement.

The Roza division of the Yakima project is located in Yakima and Benton Counties in south-central Washington. The irrigation system of the project has been completed to provide a full supply of water for the irrigation of 72,000 acres of land. Funds requested for fiscal year

1953 will provide for continuation of needed drainage construction and for the minor item of subsealing a short length of the main canal. The proposed work is necessary to prevent damage to and loss of existing farm acreage because of seepage.

PORTION OF WORK DEFERRED

I summarize that as confirming your own statement that this is largely drainage work. The other work will be deferred until later.

Mr. JACKSON. You mean this item can be deferred, the $148,000?

Mr. MARKWELL. No; the $151,500.

Mr. JACKSON. For drainage work that should be done?

Mr. MARKWELL. That should be done this year, and the other work remaining such as the construction of the power plant is being deferred.

Mr. JACKSON. That is, the $2,269,089 that remains can be completed?

Mr. MARKWELL. Yes, sir.

Mr. JACKSON. That is all.

REPAYMENT CONTRACT

Mr. NORRELL. Before we leave this matter, give us a statement regarding the repayment contract with the irrigation district.

Mr. LINEWEAVER. Yes, sir, we will insert that.

(The information requested is as follows:)

The cost of construction assigned to the Roza irrigation district, Yakima project, is covered under two contracts—one for repayment of the district's share of the project storage works for $2,500,000 and the other for $21,000,000 covering the distribution system works. There are no delinquencies in connection with these contracts. However, it is anticipated that the district will have difficulty in meeting the scheduled payments in future years.

Amendatory repayment arrangements based on full review of the economic situation as it pertains to the district are currently being negotiated with the Roza irrigation district. As soon as agreement is reached with the district on the proposed amendatory repayment contract, the contract will be submitted to the Congress for approval under section 7 of the Reclamation Project Act of 1939.

AMOUNT REPAID

Mr. JACKSON. How much has been repaid on that?

MR. LINEWEAVER. Some part of it has been paid.

Mr. JACKSON. Which portion was paid in full a year or two ago?

Mr. LINEWEAVER. That was the Trenton division of the Yakima.

Mr. JACKSON. How much did that amount to?

Mr. LINEWEAVER. I think it was $3,000,000 or $4,000,000 for that division that has been paid in full.

Mr. JACKSON. Will you put these figures in the record?

Mr. LINEWEAVER. I will put the exact figures in the record.

(The following information was later submitted:)

The total amount repaid is $3,449,114.

EDEN PROJECT, WYOMING

Mr. NORRELL. Next is the Eden project in Wyoming.

The allotment to this project for 1952 is $1,900,000 and the estimate for 1953 is $760,000.

Please insert in the record at this point pages 384 through 387 and explain this request.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$5, 989, 500
Total obligations to June 30, 1951		2, 011, 400
Allotment, fiscal year 1952	$1, 900, 000	
Prior year balance available	[1] 42, 976	
Total obligations, fiscal year 1952		1, 942, 976
Allotment, fiscal year 1953	760, 000	
Total obligations, fiscal year 1953		760, 000
Balance to complete		1, 275, 124

[1] W. C. U. funds.

JUSTIFICATION OF ESTIMATE

Authorization.—Originally under the water conservation and utility projects provision of the Interior Department Appropriation Act of 1940 (53 Stat. 685), completion of the project was authorized by the act of June 28, 1949 (63 Stat. 277).

Location.—The Eden project area occupies the broad, flat portion of the valleys of Big Sandy and Little Sandy Creeks and surrounds the small communities of Eden and Farson, Sweetwater County, Wyo.

Description.—The primary purpose of the project is to provide storage, regulation, and a water supply for the irrigation of 20,000 acres of land, including 9,000 acres of presently irrigated land in the southwestern section of Wyoming. Facilities of the project include Big Sandy Dam and Reservoir, Little Sandy diversion dam rehabilitation, Means canal, Little Sandy feeder canal rehabilitation and extension, Eden canal rehabilitation and enlargement, lateral system, rehabilitation and enlargement, and drainage system.

Repayment.—A contract has been executed with the Eden Valley irrigation and drainage district consistent with the act of June 28, 1949, authorizing completion of the Eden project. This law provides that not less than $1,500,000 of construction costs shall be reimbursable by the water users in not to exceed 60 years. The above act further provides "that construction costs of the irrigation features of the project which are not hereby made reimbursable by the water users shall be set aside in a special account against which net revenues derived from the sale of power generated at the hydroelectric plants of the Colorado River storage project in the upper basin shall be charged when such plants are constructed."

Status.—As of June 30, 1952, the project will be approximately 60 percent complete. Construction will be completed on the Big Sandy Dam and Reservoir and will be under way on the Means canal and Eden canal rehabilitation. Preconstruction operations will be active in connection with the Little Sandy diversion dam, Little Sandy feeder canal, lateral system, and drainage system.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 includes completion of construction on Little Sandy diversion dam rehabilitation, Means canal and Little Sandy feeder canal rehabilitation. Construction will be continued on Eden canal rehabilitation and started on the lateral system rehabilitation and the drainage system.

Justification.—The local water supply is more than ample to serve the presently irrigated lands, but the need for repair and improvement of the existing irrigation system to assure continued service is vital. At present there is an urgent need for drainage work and this need will be greater when new land is placed under irrigation. In addition to stabilizing the agricultural economy of the area, the 11,000 acres of new land will produce food and fiber benefiting the defense effort. Any delay in the proposed program will seriously retard the development of the irrigated lands and will increase project costs.

The total estimated cost has been reduced from $6,393,800 to $5,993,000 (anticipated total obligations $5,989,500). This reduction is due to lower bid prices on the Big Sandy Dam, partially offset by increases due to additional spillway rehabilitation requirements, the need for canal linings as a result of seepage studies, and the need for additional laterals and drains as shown by final land classification.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Big Sandy Dam and Reservoir	$2,250,400	$969,662	$1,188,138	$92,600	
Little Sandy diversion dam rehabilitation	53,700	715	6,985	46,000	
Means canal	680,800	30,466	548,834	101,500	
Little Sandy feeder canal rehabilitation	73,600	4,685	19,315	49,600	
Eden canal rehabilitation and enlargement	1,045,300	37,136	263,664	579,300	$165,200
Lateral system	940,900	16,802	62,598	237,800	623,700
Drainage system	948,300	40,697	69,903	128,500	709,200
Total cost	5,993,000	1,100,163	2,159,437	1,235,300	1,498,100
Construction facilities		330,579	−114,579	−81,000	−135,000
Stores		64,412	−38,412	−10,000	−16,000
Project investigations	(190,000)	144,918	−45,642	−27,300	−71,976
Transfers, credits and other expenditures	−3,500	−3,500			
Total expenditures	5,989,500	1,636,572	1,960,804	1,117,000	1,275,124
Unliquidated obligations		374,828	−17,828	−357,000	
Total obligations	5,989,500	2,011,400	1,942,976	760,000	1,275,124
Method of financing:					
Allotment, fiscal year 1952			1,900,000		
Prior year balance available			[1] 42,976		
Allotments required				760,000	1,275,000

[1] W. C. U. funds.

Mr. MARKWELL. I have a statement, sir, and then I will be glad to answer your questions.

GENERAL STATEMENT

The Eden project will provide a full supply of water for the irrigation of 20,000 acres of land in Sweetwater County, Wyo. Of these lands, approximately 9,000 acres are now served by an existing irrigation system that was badly in need of rehabilitation, while the remaining 11,000 acres will be new lands to be irrigated for the first time as a result of the project construction. Authorized originally as a WCU project in 1940, the Eden project was reauthorized as a Reclamation project by the Act of June 28, 1949.

As of June 30, 1952, construction of the project will be approximately 60 percent complete. The program for fiscal year 1953, for which $760,000 is requested, provides for orderly, economical progress including clean-up work on Big Sandy Dam and Reservoir, completion of construction on Little Sandy diversion dam, on Means Canal, and on Little Sandy feeder canal. Construction will be continued on the Eden Canal and started on the lateral system and the drainage system. Completion of the project, which will stabilize the economy of the surrounding area of southwestern Wyoming, is scheduled for fiscal year 1956.

AVAILABILITY OF MATERIALS

Mr. NORRELL. Are you having any difficulty getting construction material for this project?

Mr. MARKWELL. No, sir. There is very little critical material required for this rehabilitation and construction work.

KENDRICK PROJECT, WYOMING, FIRST UNIT

Mr. NORRELL. The next project is the Kendrick project, Wyoming, first unit.

The allotment to this project for 1952 amounts to $2,250,000. The estimate for 1953 is $4,100,000.

There will be inserted in the record at this point pages 389 through 394 of your justification.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$31,219,479
Total obligations to June 30, 1951		23,027,533
Allotment, fiscal year 1952	$2,250,000	
Prior year balance available	577,058	
Total obligations, fiscal year 1952		2,827,058
Allotment, fiscal year 1953	$4,100,000	
Total obligations, fiscal year 1953		4,100,000
Balance to complete		1,264,888

JUSTIFICATION OF ESTIMATE

Authorization.—The Kendrick project was authorized by finding of feasibility approved by the President August 30, 1935, under the provisions of the Fact Finders' Act of December 5, 1924 (43 Stat. 672) and the act of June 16, 1933 (National Industrial Recovery Act).

Location.—The Kendrick project is located principally in Natrona and Carbon Counties, Wyo.

Description.—The five major construction features comprising the project are: (1) Seminoe Dam and power plant located approximately 55 miles southwest of Casper, Wyo.; (2) Alcova Dam and appurtenant structures located at Alcova, Wyo.; (3) Casper canal and lateral system which will carry water for irrigating lands lying in a semicircular area southwest, west and north of Casper, Wyo.; and (5) ultimately 700 miles of transmission lines and 12 substations which will distribute power generated at Seminoe Dam and Alcova power plant to central and southern Wyoming, western Nebraska, and northern Colorado through an integrated power transmission system.

The project is designed to eventually irrigate 45,000 acres of desert and produce 32,400 kilowatts of power at the Seminoe power plant and 36,000 kilowatts of power at the Alcova power plant. Seminoe Dam creates one of the project's storage reservoirs with a capacity of 1,025,000 acre-feet. This reservoir and that created by Alcova Dam (190,000 acre-feet) provide the storage facilities for the project. The Seminoe power plant has been in operation since August 1939. The Alcova power plant was approved for construction by the Secretary September 20, 1949, after the submission of a report showing the plant to be economically feasible.

Power produced in the Seminoe power plant is being distributed over the present transmission system consisting of approximately 600 miles of transmission lines. The plant is interconnected with the transmission lines of the Bureau's Shoshone, Riverton, North Platte and Colorado-Big Thompson projects, and the transmission lines and power plants of the Missouri River Basin project. Power generated at the Alcova plant will be distributed over the existing transmission lines and substations.

Repayment.—The existing repayment contract dated August 3, 1935 (amended August 30, 1940), with the district is impossible of fulfillment. It was based on 35,000 acres of irrigable land and assumed an annual payment capacity of $2 per acre. A reclassification of the project lands has reduced the irrigable acreage to about 20,000 acres. An economic analysis of repayment capacity places that ability at about $1 per acre. Discussions of an amendatory contract are under way, and it is expected that negotiations will be completed during fiscal year 1952. The balance of the construction costs for this project will be paid from the revenues of the sale of electrical energy in accordance with prescribed provisions of reclamation law as authorized by Congress.

Status.—Construction was initiated during 1933, and as of June 30, 1952, the project will be approximately 86 percent complete and about 9,000 acres of the first unit will be under cultivation. Late in fiscal year 1951 a contract was awarded for the turbines and generators, funds being contingent upon appropriation by Congress. A major portion of the funds available in fiscal year 1952 will be utilized to service this contract and contracts awarded early in the year for the construction of the power plant. These funds will also be utilized to complete Seminoe switchyard additions, Seminoe-Rawlins to Sinclair tie line and Rawlins substation, Laramie substation additions and installation of overhead ground wires on the Seminoe Cheyenne line, Seminoe-Baroil line and substations except for Lamont substation and the permanent Powder River substation. Work will continue on installation of canal lining, extension of the lateral and drainage system, the new Casper substation, Medicine Bow-Rawlins line and substation, and installation of carrier communication, carrier relaying and control equipment.

Work proposed, fiscal year 1953.—The major portion of the request for fiscal year 1953 will be required to continue the construction of the Alcova power plant. In addition, work will be completed on the Lamont substation of the Seminoe-Baroil line, and installation of canal lining and structure improvements. Work will continue on the extension of the lateral and drainage system.

Justification.—The demand for power in this area is steadily increasing and it is evident that this will continue for several years. Since existing plants cannot meet this demand, it was desired to initiate construction of Alcova powerplant during fiscal year 1952 and to complete the installation of this additional generating capacity of 36,000-kilowatts by the end of fiscal year 1954. Work should also continue on the remaining transmission facilities and on the canal, lateral, and drainage system to efficiently distribute project power and to maintain the irrigation features in a satisfactory operating condition.

The total estimated cost of the project has been decreased from $32,262,000 to $30,774,000 (anticipated total obligations $31,219,479). This decrease is primarily due to a reduction in the requirements for drainage facilities and to changes in the design of the Alcova power plant, which has permitted substantial savings.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Seminoe Dam and Reservoir	$5,310,000	$5,174,980			$135,020
Alcova Dam	3,423,000	3,345,351			77,649
Canal system	4,084,000	3,915,237	$100,000	$68,763	
Lateral system	1,931,000	1,638,314	55,000	100,000	137,686
Drainage system	475,000	71,367	50,000	100,000	253,633
Farm unit development	137,000	86,700	17,631	15,000	17,669
Seminoe power plant	2,317,000	2,199,590			117,410
Alcova power plant and switchyard	5,330,000		1,531,000	3,500,000	299,000
Seminoe switchyard and additions	318,000	263,745	54,255		
Seminoe-Casper 69-kilovolt and related substations	175,000	155,683			19,317
Seminoe-Rawlins 34.5-kilovolt and related substations	171,000	101,243	69,757		
Seminoe-Cheyenne 115-kilovolt and related substations	1,080,000	883,302	217,512		−20,814
Cheyenne-substation and additions, 115-kilovolt	560,000	547,678			12,322
Cheyenne-Greeley 115-kilovolt	365,000	350,720			14,280
Cheyenne-Gering 115-kilovolt and related substations	558,000	540,079			17,921
Casper-Thermopolis 69-kilovolt and related substations	389,000	303,936	80,636		4,428
Seminoe-Casper 115-kilovolt and related substations	1,839,000	1,329,153	70,000	150,000	289,847
Casper area tie lines	69,000	44,807		23,168	1,025
Medicine Bow—Rawlins 34.5-kilovolt and related substations	641,000	353,606	157,067	85,000	45,327
Seminoe-Baroil 34.5 and related substations	287,000	17,858	262,142	7,000	
Distribution lines and substations	90,000	110,083			−20,083
General property	1,225,000	207,161	360,000	100,000	557,839
Total cost	30,774,000	21,640,593	3,025,000	4,148,931	1,959,476

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction facilities		$157,379	$400,000	−$50,000	−$507,379
Stores		254,784	−38,577	−48,931	−167,276
Project investigations		319,933	−200,000		−119,933
Operation and maintenance during construction	$373,477	173,477	50,000	50,000	100,000
Transfers, credits, and other expenditures	72,002	92,002	−20,000		
Total expenditures	31,219,479	22,638,168	3,216,423	4,100,000	1,264,888
Unliquidated obligations		389,365	−389,365		
Total obligations	31,219,479	23,027,533	2,827,058	4,100,000	1,264,888
Method of financing:					
Allotment, fiscal year 1952			2,250,000		
Prior year balance available			577,058		
Allotments required				4,100,000	1,265,000

Mr. NORRELL. Please explain this project.

Mr. MCPHAIL. I have a brief statement, Mr. Chairman.

GENERAL STATEMENT

Kendrick is a multiple purpose project located principally in Natrona and Carbon Counties, Wyo. Ultimately power generated at both Seminoe and Alcova power plants will be distributed over 700 miles of transmission lines and 12 substations to central and southern Wyoming, western Nebraska, and northern Colorado through an integrated power transmission system, and irrigation water will be provided for the irrigation of 20,000 acres of project lands. Construction, initiated during 1933, is approximately 86 percent complete and about 9000 acres of the first unit will be under cultivation this year.

Funds requested for fiscal year 1953 will be required principally for continuation of construction of Alcova power plant. This plant, scheduled for completion by the end of fiscal year 1954, will generate 36,000 kilowatts of power which will be distributed over the existing transmission lines and substations. Work should also continue on the remaining transmission facilities to efficiently distribute the project power.

The $100,000 requested for lateral extension for fiscal year 1953 will provide for the irrigation of 2,000 additional acres of project lands (about 16 farms), $15,000 has been budgeted for farm-unit development. A cooperative settler-assistance program has been developed with numerous agricultural agencies, including BPI and PMA. The Soil Conservation Service gives technical assistance on lay-out of farm-irrigation systems and other operations. The United States Salinity Laboratory is studying soil productivity and drainage problems. Through a memorandum of understanding with the extension service of the University of Wyoming, an assistant county agent has been employed who works on problems including methods of irrigation, adapted crops, fertilizers, livestock, size of farm units, weed control, marketing, and credit, for which service it is reimbursed not to exceed $4,800 per year by the Bureau.

RIVERTON PROJECT, WYOMING

Mr. NORRELL. The next project is the Riverton project, Wyoming.

The allotment for the project for 1952 is $900,000, and the estimate for 1953 is $437,000.

Please insert in the record at this point pages 397 through 402 of the justification, and explain the estimate.

(The pages referred to are as follows)

Summarized financial data

Estimated total obligations		$24, 680, 480
Total obligations to June 30, 1951		17, 646, 499
Allotment, fiscal year 1952	$900, 000	
Prior year balance available	869, 981	
Balance available in subsequent year	−100, 000	
Transfer from project	−20, 000	
Total obligations, fiscal year 1952		1, 649, 981
Allotment, fiscal year 1953	$437, 000	
Prior year balance available	100, 000	
Total obligations, fiscal year 1953		537, 000
Balance to complete		4, 847, 000

JUSTIFICATION OF ESTIMATE

Authorization.—The Riverton project was authorized by act of May 25, 1918 (40 Stat. 561), as an irrigation project under the Bureau of Indian Affairs. The project was placed under the jurisdiction of the Bureau of Reclamation by act of June 5, 1920 (41 Stat. 874, 915).

Location.—The project is located in Fremont County, Wyo., 122 miles west of Casper and 177 miles southeast of Yellowstone National Park. Project land is on the ceded portion of the Wind River Indian Reservation.

Description.—The primary purpose of the project is to provide a full water supply for the irrigation of 98,000 acres of semiarid new lands. Of this total the development of 42,000 acres was completed prior to 1940. The development of 7,000 acres in the Lost Wells and Pilot Extension areas was completed in fiscal year 1948. An additional 6,000 and 7,500 acres were opened to settlement in October 1949, and August 1950, respectively.

The project derives its water supply from Wind River and tributaries, having Bull Lake Reservoir as its principal storage and Pilot Butte Reservoir as supplemental storage. Water from the natural flow in Wind River and supplemental storage from Bull Lake Reservoir is diverted at Wind River diversion dam into Wyoming Canal and flows easterly 9 miles to a point where it is diverted through a drop and power plant to Pilot Butte Reservoir. Pilot Canal conveys water from this reservoir to serve a part of the irrigable land while Wyoming Canal extends easterly from the point of diversion to the Pilot Butte power plant to serve the remainder of the project.

The Pilot Butte power plant has a capacity of 1,600 kilowatts and is interconnected with the Bureau of Reclamation's transmission system extending throughout Wyoming.

The plan for completing the full development of the project provides for extending the Wyoming Canal from station 2560 to the end to serve 11,000 acres in the Cottonwood bench area, and beginning from the bifurcation works near the Wyoming Canal tunnel the Muddy Ridge Canal will be constructed to provide irrigation water to 19,500 acres of land.

Repayment.—Partial reimbursement for construction costs will be obtained from power revenues. A repayment contract has been executed with the Midvale irrigation district for $5,050,000 covering its share of the construction cost of the project. As additional divisions of the project are completed and settled, appropriate repayment contracts will be negotiated to cover the remaining portion of the reimbursable cost of the project assigned to irrigation.

Status.—At the beginning of fiscal year 1952, development and settlement of 62,000 acres in the Midvale irrigation district, North Pavillion area, and North

Portal area, had been completed. All joint facilities were substantially completed and irrigation facilities for lands within the North Portal area were substantially complete. Construction of the Wyoming Canal from station 2560 to 3304 (end) was approximately 73 percent complete with the corresponding lateral system approximately 15 percent complete. Two operation and maintenance ditch-rider's camps were constructed and a development farm put into operation. Additional canal lining was constructed in various reaches of the Wyoming Canal.

Construction of the balance of Wyoming Canal and lateral system for Cottonwood bench area, exclusive of the Badger lateral area, will be completed in fiscal year 1952, and an extension lining program will be continued throughout the reaches of the Wyoming Canal and laterals. During fiscal year 1952 the farm-unit development program will be initiated in Cottonwood bench area. Drainage investigations will be continued throughout the fiscal year with the construction of drains as required. The project radio communication system will be completed by the installation of both fixed and mobile units. An intensive land-classification program of the Third Division area will be carried on to provide data relative to the costs and repayment plan involved in the construction of the Third Division.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 includes the completion of land reclassification surveys on recently settled portions of the Midvale district as well as the third division, continuation of the canal and lateral lining program, the drainage program, and the farm unit development program, including operation of the development farm and with special attention to consideration and solution of settler and resettlement problems.

Justification.—The work proposed is required to evaluate and solve many of the serious problems now apparent in the third division. Land reclassification is necessary in order to eliminate lands high in exchangeable sodium and total dissolved salts or lands of low permeability not susceptible to reclamation. Canal and lateral lining is essential to decrease seepage from the systems now threatening certain productive areas and to reduce further waterlogging of other critical areas. Additional drainage is required in areas now adversely affected by seepage and to protect areas now in production but showing evidence of waterlogging. Many settler and resettlement problems exist on the project. The problem of principal concern is the welfare of those settlers whose farm units have been reduced in acreage because of seepage and alkali conditions, making the units of insufficient size to support a farm family. The readjustment of these units or the resettlement of the families on new units is of major importance.

The total estimated cost of this project has been increased from $24,215,000 to $24,405,000 (anticipated total obligation, $24,680,480) due to the expanded land-classification program on the third division and added canal lining requirements.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Bull Lake Dam and Reservoir	$1,118,000	$1,107,680	$803		$9,517
Pilot Butte Dam and Reservoir	407,400	401,193			6,207
Wind River diversion dam	554,200	548,305			5,895
Wyoming Canal, first division, station 0 to 487	1,265,800	1,199,697	45,000	$9,391	11,712
Wyoming Canal, second division, station 487 to 883	559,645	465,158	94,487		
Pilot Canal, second division, station 0 to 1841	929,800	885,300			44,500
Pilot Canal, second division, station 1841 to 1606	109,760	104,260			5,500
Wyoming Canal, third division, station 883 to 1606	1,801,100	1,464,768	326,687		9,645
Wyoming tunnel, third division, station 1606 to 1659	762,000	747,568	14,432		
Wyoming Canal, third division, station 1659 to 2560	1,841,075	1,723,625	115,350		2,100
Wyoming Canal, third division, station 2560 to end	1,107,660	519,160	504,000	80,000	4,500
Muddy Ridge Canal (including North Branch) third division	2,303,822	100,722	14,271		2,188,829
Wyoming laterals, first and second divisions	463,045	463,045			
Pilot laterals, second division, station 0 to 1841	574,320	574,320			
Pilot laterals, second division, station 1841 to end	388,892	388,892			
Lost Wells laterals, second division	530,421	520,421	10,000		
Wyoming laterals (Wyoming canal, third division, station 883–1605)	946,500	777,015	85,361	55,000	29,124
Wyoming laterals (Wyoming canal, third division, station 1659–2560)	1,205,000	924,723	165,143	45,000	70,134
Wyoming laterals (Wyoming canal, third division, station 2560–end)	1,119,000	225,655	407,682	105,000	380,663
Muddy Ridge laterals, third division (including north branch)	2,001,034	101,889	13,500		1,885,645
Wyoming Canal drains, first and second division, and Pilot canal, to station 1841	614,085	613,247			838
Pilot drains, station 1841 to end	2,543	2,543			
Lost Wells drains	39,198	39,198			
Wyoming drains, third division	821,445	115,664	148,000	162,609	395,172
Farm unit development	2,196,000	1,193,148	142,605	228,000	632,247
Development farm	(125,617)	(72,792)	(11,605)	(23,020)	(18,200)
Power facilities	410,170	410,528			−358
Permanent operation and maintenance camp	148,350	69,565	10,000		68,785
Bridges, Fivemile and Muddy Creeks	54,848	50,348	[1] 4,500		
Communication system	100,000	36,215	12,000		51,785
Other general property	29,887	15,887	2,000		12,000
Total cost	24,405,000	15,789,739	2,115,821	685,000	5,814,440
Construction facilities		663,685	−100,000	−43,000	−520,685
Stores		507,431	−63,000	−25,000	−419,431
Project investigations		127,925	+81,700		−209,625
Operation and maintenance during construction	275,000	57,148	20,000		197,852
Project investigations (transferred)		(30,845)			
Transfers, credits, and other expenditures	480	16,031			−15,551
Total expenditures	24,680,480	17,161,959	2,054,521	617,000	4,847,000
Unliquidated obligations		484,540	−484,540		
Estimated unliquidated obligations			80,000	−80,000	
Total obligations	24,680,480	17,646,499	1,649,981	537,000	4,847,000
Method of financing:					
Allotment, fiscal year 1952			900,000		
Prior year balance available			869,981	100,000	
Balance available in subsequent year			−100,000		
Transfer from project			−20,000		
Allotment required				437,000	4,847,000

[1] Funds required for this work included in the Missouri River basin project, Boysen Division, Boysen Unit allotment.

Mr. LINEWEAVER. I have a statement, Mr. Chairman.

GENERAL STATEMENT

A complete summary on land classification, canal lining, drainage, settlement and water-control problems on the Riverton project as of May 1951 was reported and inserted in the record of hearings before the subcommittee of the Committee on Appropriations, United States Senate, Eighty-second Congress, first session, on H. R. 3790, page 1169. This report pointed out the seriousness of problems on the Riverton project, showing that about 11,200 acres of land are affected by waterlogging, high-water table, or accumulation of salts and alkalies. Most of these losses have occurred on older portions of the project. However, much of the newly opened land is being affected at an alarming rate and there are instances where high-water tables and impeded drainage conditions have developed after only 1 or 2 years of irrigation.

SOURCES OF DAMAGE

Leakage from the canal and lateral system, drainage, and excessive water application are the principal sources of water causing the damage. It is doubtful if canal and lateral lining, improvement of irrigation practices, or drainage alone can correct many of the situations. Instead, the use of all three measures combined will be required for satisfactory solution in most areas.

For the complete information of this committee pertinent parts of the above-referenced report are quoted as follows:

MIDVALE DISTRICT

The Midvale District, which includes the first and second divisions of the Riverton project, contains 48,628 acres of irrigable land. Eleven thousand acres of this land is suffering from a damagingly high-water table, from waterlogging, or from accumulation of salts and alkalies. These 11,000 acres include 4,500 acres of land showing impaired crop production, 4,000 acres of land which are temporarily nonproductive, and 2,500 acres of land which are considered permanently nonproductive.

The Bureau of Reclamation, in its attempts to prevent waterlogging had, up to 1949, constructed 122 miles of drains in the Midvale District. Since that time, and particularly with the approval of Public Law 335, Eighty-first Congress, considerably more emphasis has been placed on lining of canals and laterals. Better irrigation practices, too, have been emphasized and an assistant county agent now devotes his entire time to the improvement of agricultural practices on the Riverton project. The Bureau, since 1948, has constructed 12.4 miles of drain and installed 16.4 miles of canal and lateral lining in the Midvale District.

Third division

The same problems of drainage and sodium which plague the Midvale District are developing at an extremely serious rate on the third division. Of approximately 5,000 acres first irrigated in 1950, 178 acres are suspended in 1951 because of waterlogging and a much larger area shows indications of a high-water table. Experience on the Midvale District indicates that unless prompt and effective protection or relief is provided an extensive area of land on the third division will be forced out of production.

During priming operations of part of the Wyoming canal (North Pavillion area) in 1949, considerable seepage was immediately evident. A little over 3 miles of asphalt membrane lining was constructed in the spring of 1950 prior to irrigation. The lining affords protection to the land for some distance below the canal. During the 1950 irrigation season several areas of waterlogged land showed up farther from the canal as well as adjacent to unlined portions of the canal. Need for drains, lateral lining, and additional canal lining is readily apparent. Priming operations and pending tests on other portions of the Wyoming canal (North

Portal area) disclosed high seepage rates in a considerable portion of the canal. Eight and one-half miles of asphalt membrane lining was constructed this spring (1951) prior to irrigation. Additional canal lining, considerable lateral lining, and numerous drains will be required to protect this area.

FIELD REVIEW OF PROBLEMS

Early in June 1951 a systematic field review was made of all problems confronting the project with a view of developing a program which would serve as a basis for revisions of the 1952 work program and the 1953 budget submission. In November a review of field accomplishments revealed definite progress made along the lines recommended as a result of the June analysis.

These two field reviews have resulted in certain conclusions and recommendations which will form the basis for a complete report setting forth a course of action to be followed in the successful completion of the project works and the solution of problems now apparent and those anticipated to arise in the near future.

Our reanalysis of the Riverton project has pointed out the need for:

(1) An amendatory repayment contract with the Midvale District.

(2) A reclassification of all lands proposed for irrigation in the third division of the project and the Lost Wells and Pilot Extension areas of the Midvale District to better evaluate the drainability of these lands with special emphasis on the high exchangeable sodium condition present in most project soils.

(3) The immediate construction of additional drains and the installation of considerably more canal and lateral lining, these facilities being first provided to areas now in production but not yet affected by seepage, and, secondly, to lands which are adversely affected but susceptible of reclamation.

(4) Postponing the land opening on Cottonwood bench scheduled for February 1952 until the land reclassification and drainability investigations are completed and the lay-out of farm units is reexamined to determine their adequacy as to size and number of units available for resettlement and general opening purposes.

(5) Postponing construction of the canal and lateral distribution system to serve lands in the Muddy Ridge area until the land reclassification and drainability investigations are completed.

(6) A thorough analysis and the preparation of a report which will include a recommended program with proposed legislation for exchange of farm units found by the reclassification to contain insufficient land to support a family.

(7) A recommendation for legislation to solve the Indian land problem.

ALLEVIATION OF HARDSHIPS OF SETTLERS

The Bureau of Reclamation has recognized the seriousness of problems on the Riverton project and we are particularly cognizant of the critical situation in which a number of the project settlers have been placed. However, substantial progress has been made during fiscal year 1952 to alleviate these hardships and we are confident that satisfactory solutions can be developed for all project problems.

The program for fiscal year 1953 is designed to provide maximum relief in the critical areas and to carry forward the development and settlement of the project on a sound and economical basis.

The fiscal year 1953 program can be made to provide approximately $537,000. The program which has been outlined is as follows:

(1) Completion of the land reclassification survey to eliminate lands high in exchangeable sodium, total dissolved salts, or of low permeability and not susceptible of reclamation.

(2) Continuing the canal and lateral lining program.

(3) Intensify the drainage program to provide for the removal of excess water.

(4) Farm unit development work on lands to be opened for settlement in February 1953.

(5) Construction of structure on laterals in the North Portal (settled) area.

(6) Construction of structures on wasteway serving areas to be opened in February 1953.

(7) Development of a complete report with recommendations for action including proposed legislation on settler and Indian land problems.

(8) Continuation of the educational and water users assistance program carried out by the assistant county agent, local county agent, Bureau of Reclamation, and by agencies of the Department of Agriculture. The educational program will be directed toward more emphasis on efficient application and use of water.

(9) Continuation and extension of the research and demonstration program currently being carried on cooperatively with the University of Wyoming and the United States Department of Agriculture through the Riverton development farm.

SHOSHONE PROJECT, WYOMING

Mr. NORRELL. The next project is the Shoshone project, Wyoming. The allotment for 1952 is $200,000, and the estimate for 1953 is $216,000.

Pages 405 through 409 of the justification will be inserted in the record at this point.

(Pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$16, 777, 349
Total obligations to June 30, 1951		13, 870, 507
Allotment, fiscal year 1952	$200, 000	
Prior-year balance available	340, 842	
Balance available in subsequent year	−71, 651	
Transfer from project	−5, 000	
Total obligations, fiscal year 1952		464, 191
Allotment, fiscal year 1953	$216, 000	
Prior-year balance available	71, 651	
Total obligations, fiscal year 1953		287, 651
Balance to complete		2, 155, 000

JUSTIFICATION OF ESTIMATE

Authorization.—The Shoshone project was authorized pursuant to the act of June 17, 1902 (32 Stat. 388), by approval of the Secretary of the Interior on February 10, 1904. The Heart Mountain power development was authorized by the Secretary pursuant to the Reclamation Project Act of 1939 (53 Stat. 1187) and by a finding of feasibility on June 19, 1945 (H. Doc. 281, 79th Cong.).

Location.—The project is located in Park and Bighorn Counties in northwestern Wyoming and extends a short distance into Carbon County, Mont. Project works extend northeast from Buffalo Bill Dam to lands including the principal towns of Cody on the west and Powell near the center of the project.

Description.—The primary purpose of the project is to provide a full water supply for the irrigation of approximately 115,000 acres of semiarid land in the northwest section of the State. Facilities of the project include Buffalo Bill Reservoir, Corbett diversion dam, Willwood diversion dam, and the appurtenant canal and lateral system. The power system includes the 5,600 kilowatt Shoshone plant, the 5,000 kilowatt Heart Mountain plant, and transmission facilities serving the area and connecting with the Bureau's power system to the south. Other divisions of the project are under investigation for future development. The present project contains 107,500 acres of irrigable land for which water supply and facilities are available and furnishes water for an installed capacity of 10,600 kilowatts.

Repayment.—All the costs of the irrigation features are currently allocated to the respective irrigation divisions. Repayment contracts are in effect on the Garland, Frannie, and Willwood divisions. The Heart Mountain Division is being settled and a repayment contract covering the irrigation works will be negotiated by the end of the development period. The direct power costs are allocated to power revenues for repayment. The cost of Buffalo Bill Dam and Reservoir is allocated 67.6 percent to irrigation and 32.4 percent to power on an acre-foot capacity basis.

Status.—Construction was initiated in 1904 and three divisions were completed. Additional work was done on the Willwood Division through a contract let in July 1951 for the relocation of a section of the Willwood Canal and of the C. J. Coulee siphon. This will be completed in fiscal year 1952. On the Heart Mountain Division the irrigation system has been substantially completed for 29,000 acres and 215 farm units have been entered. Water is available to 1,800 acres of private or State lands. Work to be completed consists of canal and lateral lining, channel and structure protection; settler assistance and land development; drainage; restoration of lands and extension of laterals to serve the War Relocation Administration camp area; and construction of additional operating facilities. Construction of works serving the Chapman Bench area of 7,500 acres, authorized as a part of the Heart Mountain Division, is being deferred pending determination of the feasibility of developing Polecat Bench as an alternate area under the Missouri River Basin project. The power facilities are complete except for improvements at the Shoshone plant to permit remote-control operation of the Heart Mountain plant, correction of river flow conditions at the Heart Mountain plant and completion of equipment installations in the transmission system.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes continuation of construction on the Heart Mountain Division, consisting of canal and lateral lining, channel and bank protection, installation of measuring devices, extension of lateral to serve War Relocation Administration camp area, extension of the drainage system, and settler assistance. Under power facilities, work will consist of correction of river-flow conditions at Heart Mountain power plant.

Justification.—The work proposed is necessary for the completion of the project and to prevent the deterioration of the existing works. Project lands will be benefited by sustained production of present seeped lands through execution of canal and lateral lining program and the drainage program. Channel rectification at the Heart Mountain power plant is necessary to improve operating conditions and efficiency of an existing facility.

Program item	Estimated total	Total to June 30, 1951	Program, current year 1952	Program, budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Joint facilities: Buffalo Bill Reservoir	$1,913,000	$1,876,405			$36,595
Irrigation facilities:					
Willwood Division:					
Willwood diversion dam	338,141	338,141			
Willwood canal	633,902	430,467	$203,435		
Laterals	127,873	127,873			
Drains	243,492	238,492			5,000
Farm unit development	29,044	29,044			
General property	27,464	27,464			
Total cost, Willwood Division	1,399,916	1,191,481	203,435		5,000
Heart Mountain Division:					
Canals and conduits	4,026,594	3,874,879	86,682	$50,565	14,468
Laterals, Heart Mountain	2,332,987	2,137,288	112,053	34,127	49,519
Pump life laterals	44,162	5,795			38,367
Chapman laterals	1,457,506	42,672			1,414,834
Drains, Heart Mountain	1,143,213	481,445	142,841	121,377	397,550
Drains, Chapman Bench	286,000				286,000
Farm unit development	608,809	498,130	34,017	20,316	56,346
General property	60,000	19,592	23,536	16,872	
Total cost, Heart Mountain Division	9,959,271	7,059,801	399,129	243,257	2,257,084
Power facilities:					
Shoshone power plant	828,413	799,225	29,188		
Heart Mountain power plant	1,416,000	1,327,516	7,000	71,651	9,833
Transmission lines, switchyards, and substations	1,224,218	1,203,964	14,683		5,571
General property	37,000	36,148	852		
Total cost, power facilities	3,505,631	3,366,853	51,723	71,651	15,404
Total cost	16,777,818	13,494,540	654,287	314,908	2,314,083
Construction facilities		78,843	−16,640	−15,000	−47,203
Stores		72,923	−9,423	−12,000	−51,500
Other work in progress		11,572	−11,572		
Transfers, credits, and other expenditures	−469	60,168		−257	−60,380
Total expenditures	16,777,349	13,718,046	616,652	287,651	2,155,000
Unliquidated obligations		152,461	−152,461		
Total obligations	16,777,349	13,870,507	464,191	287,651	2,155,000
Method of financing:					
Allotment, fiscal year 1952			200,000		
Prior-year balance available			340,842	71,651	
Balance available in subsequent year			−71,651		
Transfer from project			−5,000		
Allotment required				216,000	2,155,000

Mr. NORRELL. Please explain this request.

Mr. MARKWELL. I have a statement, and then I will be glad to answer questions.

GENERAL STATEMENT

The Shoshone project, consisting of four irrigation divisions and one power division, is located in Park and Bighorn Counties in northwestern Wyoming and extends a short distance into Carbon County, Mont. Major irrigation facilities to serve an area of 107,500 acres are substantially complete, as are the project's two power plants having a total generating capacity of 10,600 kilowatts and with transmission facilities serving the immediate area and connecting with the Bureau's power system to the south.

REQUEST FOR 1953

The appropriation of $216,000 requested for fiscal year 1953 will provide for continuation of construction on the Heart Mountain Division and for the correction of river flow conditions at the Heart Mountain power plant. The work, which will include canal and lateral lining and provision of drainage facilities, is particularly necessary to prevent deterioration and lowered productivity of project lands from seepage.

STATUS OF REPAYMENT CONTRACTS

Mr. NORRELL. You might tell us how you are getting along with your repayment contracts on this project.

Mr. EATON. In the Shoshone project, the Heart Mountain division is covered by repayment contracts. The Heart Mountain area is newly settled and the G. I.'s have not had the time to form their irrigation districts and assume regular contracts, but there is agreement to do so, an agreement signed, to sign contracts, so we are fully covered on that, sir.

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS

Mr. NORRELL. The next item will be "Rehabilitation and betterment of existing projects." The amount allotted to this item for 1952 is $3,352,450, which includes $500,000 of emergency funds allotted to the Boise project. The estimate for 1953 is $2,342,000.

Please insert in the record at this point pages 412 through 415.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$29, 541, 327
Total obligations to June 30, 1951		6, 482, 372
Allotment, fiscal year 1952	[1] $3, 352, 450	
Prior year balance available	716, 116	
Balance available in subsequent year	−246, 343	
Total obligations, fiscal year 1952		3, 822, 223
Allotment, fiscal year 1953	$2, 342, 000	
Prior year balance available	246, 343	
Total obligations, fiscal year 1953		2, 588, 343
Balance to complete		16, 648, 389

[1] Includes $500,000 of emergency funds allotted to Boise project.

JUSTIFICATION OF ESTIMATE

Authorization.—Rehabilitation and betterment work on existing projects was authorized by the act of October 7, 1949 (63 Stat. 724), amended by the act of March 3, 1950 (64 Stat. 11).

Location.—The program for fiscal year 1953 embraces rehabilitation and betterment work on 10 Reclamation projects located in 8 of the 17 Western States, The States in which work is proposed are: Arizona, California, Montana Nebraska, Oregon, South Dakota, Washington, and Wyoming.

Description.—The rehabilitation and betterment program was initiated by a series of surveys made with general investigation funds in 1947 and 1948. The surveys included 51 Bureau of Reclamation projects or units of projects, on which construction was initiated as far back as 1906.

Because of the type of construction employed at that time, and the fact that many structures have far exceeded their useful life, and because of the many changes in land use, methods of irrigation, and types of crops raised, it was apparent that the irrigation facilities must not only be rehabilitated but that betterments were needed to place these projects on a basis comparable to projects now being constructed. Where extensive rehabilitation is necessary, the amount of such work that can be accomplished in any one year depends in many cases upon the length of time available between irrigation seasons.

Repayment.—In accordance with the authorizing act, provision for full reimbursement must be completed before rehabilitation and betterment activities are initiated.

Status.—As a result of the 1947–48 survey, those projects most urgently needing rehabilitation and betterment assistance were selected for participation in the fiscal year 1949 program. Estimates and schedules were prepared and presented to the Bureau of the Budget and to the Congress. These schedules were approved and a total of $1,500,000 was appropriated. Nine projects received allotments from this fund and some of the most necessary rehabilitation and betterment was accomplished.

The fiscal year 1950 and 1951 programs consisted of scheduled work on 12 projects with appropriated amounts of $2,500,000 and $3,000,000 respectively.

The fiscal year 1952 program now in progress includes allotments to 12 projects for which an appropriation of $2,852,450 was made by the Congress and work on one project financed by emergency funds.

The over-all rehabilitation and betterment program is now comprised of 17 projects and an entry for additional projects. Of the total of 17 projects, 1 project has been completed and 3 projects will be completed in 1952. Two projects are expected to require rehabilitation work starting in fiscal year 1954. The entry for additional projects represents the anticipated remaining rehabilitation and betterment work which cannot be accurately identified with specific projects at this time.

Work proposed, fiscal year 1953.—Rehabilitation and betterment work on 10 projects will be carried on during the year. This work will include replacement of obsolete or deteriorated structures and the improvement of facilities not presently adequate to meet current requirements. Typical examples of the work to be undertaken during the fiscal year to accomplish the rehabilitation and betterment program are: Replacement of timber structures, resolution of drainage problems, placing rock riprap canal bank stabilization, placement of canal and lateral linings, installation of measuring devices, and other work incident to more efficient operation.

Justification.—The fiscal year 1953 program is essential to prevent the continued excessive loss of valuable water and consequent reduction in benefits to be derived by the application of such water to productive lands. Rehabilitation and betterment is equally necessary on other projects in order to restore project facilities to good operating conditions. Accomplishment of the rehabilitation and betterment program will serve to protect the Federal investment in these projects and will constitute a substantial contribution to national defense in that production of food and fiber on the project lands will be maintained at a maximum while manpower requirements will be held to a minimum. On some multiple-purpose projects, such as the North Platte and Riverton projects, where facilities are used jointly for irrigation and power, power production has benefited indirectly by this program.

The total estimated obligations to be incurred in accomplishment of the rehabilitation program have been reduced from $39,451,928 to $29,541,327. This reduction has been principally effected by the withdrawal of the Yuma and Rio Grande projects, whose water users have indicated a determination to finance all needed project improvements with current assessments.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Salt River project, Arizona	$6,000,000	$1,376,762	$1,363,237	$1,000,000	$2,260,001
Orland project, California	250,000	226,838	23,162		
Grand Valley project, Colorado	1,648,310	1,559,810	88,500		
Uncompahgre project, Colorado	235,000				235,000
Boise project, Idaho	1,250,000	16,262	500,000		733,738
Bitter Root project, Montana	37,036	37,036			
Milk River project, Montana	659,673	294,477	137,196	160,000	68,000
Sun River project, Montana	35,698	13,224	16,474	6,000	
North Platte project, Nebraska-Wyoming	8,175,000	926,205	606,875	615,270	6,026,650
Vale project, Oregon	50,000	49,351	649		
Klamath Project, Oregon-California	65,000		12,000	53,000	
Owyhee project, Oregon-Idaho	200,000				200,000
Belle Fourche project, South Dakota	375,193	268,805	98,388	8,000	
Okanogan project, Washington	123,000		5,000	118,000	
Yakima project, Washington	803,206	573,400	219,597	10,209	
Riverton project, Wyoming	1,965,211	868,662	649,467	447,082	
Shoshone project, Wyoming	669,000	271,540	101,678	170,782	125,000
Additional project	7,000,000				7,000,000
Total obligations	29,541,327	6,482,372	3,822,223	2,588,343	16,648,389
Method of financing:					
Allotment, fiscal year 1952			2,852,450		
Allotment, emergency fund, irrigation and power systems			500,000		
Prior year balance available			716,116	246,343	
Balance available in subsequent year			−246,343		
Allotment required				2,342,000	16,648,400

Mr. NORRELL. Please explain this estimate.

Mr. LINEWEAVER. On rehabilitation and betterment, I have a statement on that program which I will read, and then I will be glad to answer any questions.

Mr. NORRELL. All right.

GENERAL STATEMENT

Mr. LINEWEAVER. Public Law 335, Eighty-first Congress, first session, approved October 7, 1949, provides, in part, that expenditures of funds appropriated for the rehabilitation and betterment of irrigation systems on Federal Reclamation projects—

* * * shall be made only after the organizations concerned shall have obligated themselves for the return thereof in installments fixed in accordance with their ability to pay, as determined by the Secretary of the Interior in the light of their outstanding repayment obligations, and which shall, to the fullest practicable extent, be scheduled for return with their construction charge installments or otherwise scheduled as he shall determine. No such determination of the Secretary of the Interior shall become effective until the expiration of 60 days after it has been submitted to the Committee on Interior and Insular Affairs of the Senate and the Committee on Public Lands of the House of Representatives.

By enactment of Public Law 451, Eighty-first Congress, second session, approved March 3, 1950, the language of Public Law 335 requiring a 60-day waiting period before the Secretary's findings could become effective was modified as follows:

* * * any such determination may become effective prior to the expiration of such 60 days in any case in which each such committee approves an earlier date and notifies the Secretary, in writing, of such approval: *Provided*, That when Congress is not in session the Secretary's determination, if accompanied by a finding by the Secretary that substantial hardship to the water users concerned or substantial further injury to the project works will result, shall become effective when the chairman and ranking minority member of each such committee shall file with the Secretary their written approval of said findings.

Allocation of rehabilitation and betterment funds by projects, Dec. 31, 1951

	Fiscal year 1949	Fiscal year 1950	Fiscal year 1951	Fiscal year 1952	Totals to date
Milk River	$106,800	$23,250	$153,000	$125,000	$408,050
North Platte	455,000	80,000	426,000	585,001	1,546,001
Orland	131,750	114,250	4,000	0	250,000
Riverton	160,000	379,000	226,320	634,000	1,399,320
Shoshone	30,000	211,000	32,000	149,270	422,270
Sun River	15,000	0	0	16,474	31,474
Yakima	531,450	0	48,674	223,431	803,555
Belle Fourche	45,000	100,000	100,000	100,000	345,000
Bitter Root	25,000	15,000	0	0	40,000
Vale	0	50,000	0	0	50,000
Grand Valley	0	730,000	817,506	81,274	1,628,780
Salt River	0	790,000	1,200,000	750,000	2,740,000
Okanogan	0	0	0	123,000	123,000
Klamath	0	0	0	65,000	65,000
Subtotal	1,500,000	2,492,500	3,007,500	2,852,450	9,852,450
Transferred to symbol 14X0661 (Rehabilitation and betterment)		7,500			
Transferred from symbol 14X6000.095			−7,500	0	0
Total appropriated	1,500,000	2,500,000	3,000,000	2,852,450	9,852,450

Through fiscal year 1952 a total of $9,852,450 has been appropriated for urgently needed rehabilitation and betterment work on the following 14 projects: Belle Fourche, S. Dak.; Bitter Root, Mont., Grand Valley, Colo.; Milk River, Mont.; North Platte, Nebr.-Wyo.; Orland, Calif.; Riverton, Wyo.; Salt River, Ariz.; Shoshone, Wyo.; Sun River, Mont.; Vale, Oreg.; Yakima, Wash.; Okanogan, Wash.; and Klamath, Calif.-Oreg.

Prior to the expenditure of these funds the requirements of Public Law 335 have been or will be met by entering into contracts with the irrigation districts concerned for the repayment of the cost of the rehabilitation and betterment work. The annual rate of payment by the water users of these contracts is based on the finding of the Secretary of the Interior regarding ability of the water users to pay, after due consideration of their outstanding repayment obligations. To the fullest extent practicable the repayment is scheduled to be made concurrently with the return of the basic construction charge obligation. The Senate and House Committees on Interior and Insular Affairs have in every case been advised by the Secretary of the Interior and have approved his findings concerning the water users' ability to pay and the proposed schedule of rehabilitation and betterment reimbursement.

All scheduled rehabilitation and betterment work on the Orland project, California; Bitter Root project, Montana; and the Vale project, Oregon, has been completed or will be completed during this fiscal year with carry-over funds from fiscal year 1951. In addition, it is anticipated that this work will be completed on the Grand Valley project, Colorado; the Yakima project, Washington; and the Klamath project, California-Oregon, with funds allotted from the appropriation for fiscal year 1952.

The total of $2,342,000 requested for fiscal year 1953 will be allotted as follows:

Salt River project, Arizona	$1,000,000
Milk River project, Montana	160,000
Sun River project, Montana	6,000
North Platte project, Nebraska-Wyoming	615,270
Belle Fourche project, South Dakota	5,000
Riverton project, Wyoming	434,000
Shoshone project, Wyoming	121,730
Total	2,342,000

Rehabilitation of the Sun River and Belle Fourche projects will be completed with the funds allotted in fiscal year 1953.

The total estimated cost of the program for rehabilitation and betterment of existing projects has been reduced $10,860,600 since submission of the fiscal year 1952 budget, principally through the withdrawal of the Yuma project, Arizona, and the Rio Grande project, New Mexico-Texas, whose water users decided to complete the rehabilitation of structures and facilities on their projects as they are able to do so with their own funds.

REPAYMENT CONTRACTS

Mr. NORRELL. I am interested in how you are getting along with the repayment contracts, and I assume you have not done very much.

Mr. LINEWEAVER. Yes, sir; we must have a repayment contract on each project. Under Public Law 451, we must have a repayment contract before any expenditures are made.

Mr. NORRELL. Will you tell us about that?

Mr. LINEWEAVER. We have or will have a repayment contract on all expenditures that are to be made on the projects that are in the program for 1953. We have repayment contracts on practically all of those or will have them before any expenditures are made.

ITEMS THAT MAY BE DEFERRED

Mr. NORRELL. Are there any items here that might be deferred until after the emergency?

Mr. LINEWEAVER. Mr. Chairman, the rehabilitation and betterment program was inaugurated by the Bureau and approved by the Congress as an emergency proposition to correct deferred maintenance because the water users had not been able to finance maintenance during the war period and the depression period. In order to keep the irrigation systems in good working order and protect the Government's investment, this program was started and has been found to be essential for the maintenance of the civilian economy of the project areas.

ALLOTMENT OF REQUEST

Mr. NORRELL. How much of your request for this project has been charged to flood control?

Mr. LINEWEAVER. $3,300,000.

Mr. JENSEN. How will the amount for 1953 be allotted?

Mr. LINEWEAVER. For 1953 there are seven projects, Mr. Jensen:

The Salt River project in Arizona;

The Milk River project in Montana;

The Sun River project in Montana;

The North Platte project in Nebraska and Wyoming;

The Belle Fourche project in South Dakota;

The Riverton project in Wyoming; and

The Shoshone project in Wyoming—the older section of the Riverton project, and the older section of the Shoshone project in Wyoming.

Mr. JENSEN. That was authorized in a continuing program here a few years ago so as to put these projects in good condition over a period of years.

Mr. LINEWEAVER. Yes, sir. We have some projects that are carried over with 1952 funds, Mr. Jensen, and they are included in the analysis of what this program contemplates.

Mr. JENSEN. That is all.

Mr. LINEWEAVER. There is another statement we are submitting for the record which gives the background on this program.

(The statement referred to is as follows:)

During the depression years of the 1930's it was impossible for water users on many of the older Bureau projects to meet in full the costs of maintaining irrigation facilities in first class condition. Then beginning with the war emergency, materials and manpower became so scarce that it again became necessary to defer those maintenance items which were not absolutely essential for each year's operation. It was realized in 1946 that as a result of these conditions a considerable backlog of deferred maintenance would have to be undertaken in order to replace irrigation facilities in satisfactory condition. After surveys of all of the older Bureau projects, the facts concerning unsatisfactory operating conditions and in some instance actual danger of complete failure during continued use of irrigation facilities were presented to the Congress and an appropriation of $1,500,000 was provided to begin the rehabilitation of a few projects during fiscal year 1949.

The first session of the Eighty-first Congress studied the matter more thoroughly and by Public Law 335 authorized a formal rehabilitation and betterment program and spelled out in more detail just what work might be done and how the cost should be repaid to the Government. In Public Law 451 the second session of the same Congress set up a procedure by what the contracts for repayment for this cost could be cleared by the appropriate committees in each House without the necessity of actual legislation in the case of each project. Repayment contracts are executed by the water-users organizations and the Government, and the terms of repayment are approved by the congressional committees before any expenditures of rehabilitation and betterment funds are made.

Through fiscal year 1952 a total of $9,852,450 has been appropriated for urgently needed rehabilitation and betterment work on 14 projects. Prior to the expenditure of these funds the requirements of Public Law 335 have been or will be met by entering into contracts with the irrigation districts concerned for the repayment of the cost of the rehabilitation and betterment work.

All scheduled rehabilitation and betterment work on the Orland project, California; Bitter Root project, Montana; and the Vale project, Oregon, has been completed or will be completed during this fiscal year with carry-over funds from fiscal year 1951. In addition, it is anticipated that this work will be completed on the Grand Valley project, Colorado; the Yakima project, Washington; and the Klamath project, California-Oregon with funds allotted from the appropriation for fiscal year 1952, and that rehabilitation of the Sun River and Belle Fourche projects will be completed with the funds allotted in fiscal year 1953.

The total estimated cost of the program for rehabilitation and betterment of existing projects has been reduced $10,860,600 since submission of the fiscal year 1952 budget, principally through the withdrawal of the Yuma project, Arizona, and the Rio Grande project, New Mexico-Texas, whose water users decided to complete the rehabilitation of structures and facilities on their projects as they are able to do so with their own funds.

Missouri River Basin Project

PHASE A—UNITS READY FOR OR UNDER CONSTRUCTION

Mr. Norrell. The next item is the Missouri River Basin project.

Speaking over-all of the Missouri River Basin project, the allotment for 1952 is $51,109,075. The allotment for 1953 is $53,031,000 and in addition there is a proposed transfer to the project of $3,167,936.

We will first discuss phase A and then take up the other phases in order.

Pages 424 through 426–A of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$3, 430, 284, 599
Total obligations to June 30, 1951		248, 465, 279
Allotment, fiscal year 1952	$51, 109, 075	
Prior year balance available	17, 584, 347	
Balance available in subsequent years	−8, 411, 174	
Total obligations, fiscal year 1952		60, 282, 248
Allotment, fiscal year 1953	$53, 031, 000	
Prior year balance available	8, 411, 174	
Transfer to project	3, 167, 936	
Funds advanced by water users	12, 154	
Total obligations, fiscal year 1953		64, 622, 264
Balance to complete		3, 056, 914, 808

Justification of estimate

Authorization.—The Missouri River Basin project was authorized by the Flood Control Act of December 22, 1944 (58 Stat. 887), and subsequent acts in accordance with a plan of development set forth in Senate Document 191 and House Document 475, as revised and coordinated by Senate Document 247, Seventy-eighth Congress, second session.

Location.—The units of the Missouri River Basin project are located within the drainage basin of the Missouri River, comprising all or parts of the 10 States of Montana, Wyoming, Colorado, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, and Missouri.

Description.—The purpose of the Missouri River Basin project is for the full utilization of all of the water resources of the basin. It will provide a full water supply for about 5,300,000 acres of land, and a supplemental water supply for over 1,000,000 acres, develop about 1,100,000 kilowatts of electrical energy, control floods, and provide facilities for recreation, fish and wildlife, navigation, municipal water, mineral development, and industrial growth. The accomplishment of this program, which consists of three stages: (1) Conservation of water, (2) control of water, and (3) utilization of water, must necessarily place emphasis, in the first instance on the construction of dams and reservoirs for conservation and flood-control purposes with the construction of irrigation and municipal use facilities to follow. Exceptions to this general policy must be recognized in those areas where utilization of the water is of immediate concern since existing reservoirs make conservation an accomplished fact or the stream flow is adequate without storage. Accomplishment of the goals of basin-wide development requires the undertaking of simultaneous programs of investigations, construction, and operation and maintenance. In addition, to insure a unified approach to all of the many factors involved in developing the basin resources to the optimum extent, with proper recognition of all problems influencing the program, seven agencies of the Department of the Interior participate in the program. Those agencies which participate with the Bureau of Reclamation in this program are the Bureau of Land Management, Bureau of Mines, Fish and Wildlife Service, Geological Survey, National Park Service, and the Bureau of Indian Affairs.

The plans and activities of these agencies are effectively coordinated by continuous interagency liaisons through the Missouri River Basin Field Committee and the Missouri River Basin Interagency Committee.

Repayment.—Water service and repayment contracts are being negotiated with the potential water users of each irrigation and municipal water development. The cost of facilities for the generation and distribution of electrical power will be returned from power revenues. The repayment status is explained in greater detail in the supporting justification for each of the individual units or divisions ready for or under construction.

Status.—By the beginning of fiscal year 1952 work had been advanced to the point where 30 units and divisions of the Missouri River basin project were under construction or ready for construction. At that time the Angostura, Enders, Dickinson, Heart Butte, Medicine Creek, Shadehill, and Bonny Dams were functionally complete and in operation. Construction of the canals and laterals to serve 2,218 acres of the Savage unit was complete and the Kortes Dam and power plant was in full operation although minor finishing work remained to be accomplished. During fiscal year 1952 work will be completed on the Angostura power plant and Cedar Bluff and Keyhole Dams. Boysen Dam and power plant will be substantially completed and 15,000 kilowatts of hydroelectric power made available. Construction will be continued on Canyon Ferry Dam and power plant; Trenton Dam; the irrigation facilities of the Angostura unit, Bostwick division; and the Frenchman-Cambridge division; and the transmission facilities to interconnect and deliver power from power plants of the Bureau of Reclamation and the Corps of Engineers. Final designs will be completed, contracts awarded, and construction initiated on Kirwin and Jamestown Dams. Construction will be initiated on the irrigation facilities of the Cartwright, Crow Creek, Fort Clark, and Heart Butte units. Preconstruction activities leading toward preparation of the definite plan reports will be under way on 28 units in phase B, and basin-wide investigations of the general plan of development will be continued.

Work proposed, fiscal year 1953.—The fiscal year 1953 program provides for the completion of the irrigation facilities of the Angostura, Cartwright, and Fort Clark units. Work will also be completed on the Trenton Dam and Reservoir and the Boysen Dan and power plant. Funds are requested to continue work on Canyon Ferry Dam and power plant; Kirwin Dam and Reservoir; Jamestown Dam and Reservoir; the irrigation facilities of the Heart Butte and Crow Creek units and the Bostwick and Frenchman-Cambridge divisions; and a number of major transmission lines and related substations. In addition the Glen Elder unit will be advanced into the construction phase and contracts will be awarded and construction started on the Glen Elder in the Kansas River Basin. The assembly of detail design data and the preparation of final designs and specifications will continue on the Glendo and Narrows Dams, and the irrigation facilities of the Sidney unit with the view of placing these structures under construction in fiscal year 1954. In addition preconstruction work will be continued on 21 units in phase B. Basin-wide surveys of the general plan of development will be continued as will the investigational activities of the other Department of Interior agencies participating in the program.

Justification.—The electrical power shortage which existed in many areas of the Missouri River Basin at the time of project authorization has become much more acute and is seriously hampering further industrial or irrigation developments. The constant menace of recurring floods and dust bowls is more acute than ever before, and the need to increase the productive capacity of the basin is greatly emphasized by the present defense emergency. The construction of the Missouri River Basin project has been scheduled at the minimum rate possible with the view of remedying this situation and providing the electrical power and irrigation developments consistent with available funds and construction conditions. Several major features have been completed and a number of others are well under construction, representing a substantial investment on the part of the Government which, in most instances, cannot be fully utilized without the completion of the remaining features of the units involved. Funds are needed for continuation of construction in accordance with the present program to provide for the early availability of badly needed hydroelectric power, additional irrigation developments to stabilize the economy of the country and contribute to the welfare of the Nation, and full and efficient utilization of completed facilities.

GENERAL STATEMENT

Mr. LINEWEAVER. Mr. Chairman, I have a general statement which gives a description of the project.

On July 1, 1952, the comprehensive Missouri River Basin project will be entering its eighth year of development as an integrated basin-wide project designed ultimately to accomplish maximum use of all the water resources of the basin. Construction started in April 1946 with the award of contracts for the Kortes Dam and power plant in Wyoming, followed that same year by the Angostura, South Dakota, and Frenchman-Cambridge, Nebraska, storage and irrigation units. The first results to be realized were facilities for irrigating the 2,218 new acres of the Savage unit in Montana, December 1949, and 30,000 kilowatts of new power capacity at Kortes in 1950.

ACCOMPLISHMENTS TO DATE

Thirteen Reclamation dams are now either completed or well along under construction, and two more, Kirwin in Kansas and Jamestown in North Dakota, are scheduled to start this spring in the current fiscal year. Appropriations reached a peak in 1950 with over $81 million for that fiscal year, although to date only $323 million has been made available for the entire project for the 7 years ending this June. During the past 2 years work has sharply declined due to smaller appropriations and the cut-backs of national defense.

REQUEST FOR 1953

The present bill for fiscal year 1953 contains $53,031,000 for the entire project. This is a minimum amount to carry on going construction, with large reductions in the related planning and investigations in the basin. No funds are provided for starting new units with the exception of the Glen Elder Dam in Kansas, and in many cases important and necessary features of units already substantially built cannot go forward. At the present rate of activity, all work is gradually coming to a halt, and a trained organization developed at great effort and expense over the past 7 years is being disbanded. Unless this situation is reversed in the near future, the Government will have over $300 million invested in an undertaking stopped short of its real goals, and of which much will be wasted.

The funds being requested under present limitations to the national budget are too small to carry on the project at a rate which will insure optimum returns on the investment. These funds must cover all or parts of 10 States involving over 300 units of the plan. The ultimate primary goals are over 6,000,000 acres of irrigation land in the basin and 1,000,000 kilowatts of new power capacity. These goals should be achieved at an orderly rate over a reasonable period of years, with attention to freedom from disastrous floods and droughts at the earliest practical date. The corollary benefits to national defense, recreation, fish and wildlife, and mineral and industrial development will then be achieved at the same time.

IMPORTANCE OF MISSOURI BASIN

The Missouri Basin area is one-sixth of the United States, but capable of sustaining only a small fraction of our economy under present adverse conditions. In order to increase our national production, more important even in war than in peace, to decentralize overloaded areas, and to support a growing population under constantly

higher standards of living, the Missouri Basin must be put in a position to take its proportionate share of the load. A stabilized and highly productive agriculture, an ample supply of low-cost hydropower, and freedom from floods will make this possible. A short-sighted economy that permits the area to drift backward under pressure of war will seriously cripple the Nation.

Many important units of the project are now ready to go forward, depending on funds only to be under way, such as the entirely self-liquidating Yellowtail Dam and power plant in Montana, which would add 748,000,000 kilowatt-hours annually to our critical power supply; the 127,000-acre Lower Marias unit, also in Montana; the Rapid Valley unit in South Dakota; the Owl Creek unit in Wyoming; and the Sargent unit in Nebraska. It is hoped budgetary limitations can be lifted as soon as possible so that these developments can go forward.

ITEMS IN REQUEST

The funds requested in the present bill are for 12 units under construction (phase A) requiring $44,531,000; advance planning (phase B) requiring $383,500; project investigations (phases C and D) amounting to $2,116,500; operation and maintenance of completed works (phase E), $1,000,000; and $5,000,000 for transfer to participating agencies of the Department other than Reclamation. In addition to new funds, it is estimated that unobligated balances of prior-year funds will be available to carry on the construction of five units that are nearing completion. Altogether there are now 30 units in the construction or A phase of the project. Twelve of these units are in a deferred status, with no construction program in fiscal year 1953.

BOSTWICK DIVISION, NEBRASKA-KANSAS

Mr. NORRELL. We turn to the Bostwick division, Nebraska-Kansas, the first item in the Missouri River Basin project.

I notice that this year you have an allotment of $1,900,000 and that the estimate for fiscal year 1953 is $3,124,000, and in addition you desire to transfer $841,000 to the project.

Pages 427 through 431 will be inserted in the record at this point, and you may explain the estimate.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$48,039,308
Total obligations to June 30, 1951		8,082,475
Allotment, fiscal year 1952	$1,900,000	
Prior-year balance available	1,658,157	
Total obligations, fiscal year 1952		3,558,157
Allotment, fiscal year 1953	$3,124,000	
Transfer to project	841,000	
Total obligations, fiscal year 1953		3,965,000
Balance to complete		32,433,676

JUSTIFICATION OF ESTIMATE

Location.—The Bostwick division is located in south-central Nebraska and north-central Kansas. Project works extend east and south along the Republican River from Harlan County Dam, under construction by Corps of Engineers, to lands adjacent to Concordia, Kans.

Description.—The Bostwick division is a multiple-purpose project to provide irrigation for 90,000 acres of land, regulation of stream runoff for flood control in the lower Republican and Kansas River Basins, fish and wildlife conservation, and recreation. Facilities of the project include Harlan County Dam and Reservoir (USCE) with a total storage capacity of 850,000 acre-feet, Lovewell Dam and Reservoir, with a total storage capacity of 94,000 acre-feet; three diversion dams, four electric pumping plants, canals, subcanals, laterals, and drains for effective irrigation of 90,000 acres of rich bottom lands and table lands.

Repayment.—A water service and repayment contract has been executed with the Nebraska Bostwick irrigation district for providing water service and the payment of construction costs of the Nebraska portion of the distribution system amounting to $2,260,000. A contract has also been executed with the Kansas Bostwick irrigation district No. 2 for the payment of construction costs for laterals and drains for the Kansas portion amounting to $3,500,000. A permanent injunction was granted by the district court at Belleville, Kans., enjoining the irrigation district board of directors from making an assessment. The amendment to the Kansas irrigation law as passed by the 1950 legislature was declared unconstitutional. However, the injunction was appealed to the Kansas Supreme Court by the irrigation district, and the injunction has been set aside. The matter of confirmation is now to be reopened by the district court.

Status.—Construction of Bureau of Reclamation works in the Bostwick division began in March 1949. As of June 30, 1952, the project will be approximately 23 percent complete. Construction will be complete on Superior-Courtland diversion dam, Superior canal and laterals, the Nebraska portion of the Courtland canal and lateral system and the Franklin South Side pumping plant, canal, and lateral system. Construction will be underway on the Franklin canal and the Courtland canal in Kansas. Preconstruction operations will be in progress on the Lovewell Dam and Reservoir, the Courtland canal and lateral system adjacent to the Lovewell Dam, the Naponee canal and lateral system and the Franklin lateral system. Project investigations in connection with all remaining features will be in progress.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes continuation of construction on the Franklin canal and Courtland canals. Construction will be initiated on the Franklin lateral system, and the Naponee canal and lateral system. Preconstruction activities will continue on Lovewell Dam and Reservoir, on the Courtland canal and laterals below Lovewell Dam and remaining portions of the Franklin canal and lateral systems. Project investigation will continue on some remaining features.

Justification.—The necessity for regulation of stream runoff in this area has been poignantly reflected by damages incurred through flood and high water in this vicinity as well as in the lower Republican and Kansas River Basins during the past few seasons and especially during July of this year. The abundant production of food and byproducts which will be made possible by the irrigation of lands in the Bostwick division will contribute to the defense effort. In order to permit the maximum benefit to be derived from the project work, it will be necessary to continue construction of all features at the rate shown in the schedules. The proposed program which contains both the irrigation and flood-control features, will, if delayed, result in postponing the production of vital food and clothing which this area is capable of producing for defense.

The total estimated cost of the Bostwick division has been increased from $34,738,300 to $47,930,000 (anticipated total obligation $48,039,308). This cost increase is attributable in the main to a reestimate of construction quantities on the basis of revised design criteria and the computation of a new cost estimate in accordance with current price trends. The increase in the cost estimate for Lovewell Dam results from the plan to provide for more conservative foundation treatment and redesign for increased flood-control capacity. Other feature costs were adjusted to reflect revised estimates made possible by more extensive preconstruction data.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Lovewell Dam and Reservoir	$9,042,000	$168,314	$50,000	$100,000	$8,723,686
Superior-Courtland diversion dam	1,850,000	1,675,826	174,174		
Republic diversion dam	1,912,000	57,396			1,854,604
Scandia diversion dam	2,376,000	58,376			2,317,624
Franklin South Side pumping plant	112,000	18,095	93,905		
Red Cloud pumping plants (3)	90,000	5,160			84,840
Naponee canal	381,000	15,957	8,000	101,000	256,043
Franklin canal	5,465,000	274,704	700,000	1,750,000	2,740,296
Franklin south side pump canal	236,000	43,599	187,000	5,401	
Red Cloud pump canals	195,000	20,817			174,183
Superior canal	2,159,000	1,963,596	195,404		
Courtland canal	8,290,000	2,132,496	1,305,000	1,700,000	3,152,504
Republic east and west canals	1,315,000	96,013			1,218,987
Scandia canal	1,395,000	26,554			1,368,446
Naponee laterals	31,000	4,652	500	7,500	18,348
Franklin laterals	1,439,000	46,423	66,000	325,000	1,001,577
Franklin South Side pump laterals	82,000	18,096	60,500	3,404	
Red Cloud laterals	5,000	1,026			3,974
Superior laterals	563,000	251,708	311,292		
Courtland laterals (Nebraska)	268,000	54,144	213,856		
Courtland laterals (Kansas)	2,834,000	91,745	125,000		2,617,255
Republic east and west laterals	605,000	11,737			593,263
Scandia laterals	905,000	17,303			887,697
Franklin unit drains	878,000	14,600			863,400
Superior-Courtland unit drains	3,136,000	57,000			3,079,000
Republic unit drains	755,000	13,600			741,400
Scandia unit drains	1,128,000	21,000			1,107,000
Farm unit development	81,000	2,895	8,000	9,000	61,105
General property	260,000		52,000		208,000
Lovewell recreation development	142,000				142,000
Total cost	47,930,000	7,162,832	3,550,631	4,001,305	33,215,232
Construction facilities		220,464	−32,015	27,853	−216,302
Stores		45,637			−45,637
Operation and maintenance during construction	109,308	20,533	88,775		
Transfers, credits, and other expenditures		15,046			−15,046
Total expenditures	48,039,308	7,464,512	3,607,391	4,029,158	32,938,247
Unliquidated obligations		617,963	−49,234	−64,158	−504,571
Total obligations	48,039,308	8,082,475	3,558,157	3,965,000	32,433,676
Method of financing:					
Allotment, fiscal year 1952			1,900,000		
Prior-year balance available			1,658,157		
Transfer to project				841,000	
Allotments required				3,124,000	32,434,000

GENERAL STATMENT

Mr. LINEWEAVER. Mr. Chairman, I have a statement, and I would just like to call your attention to the fact that this is all Nebraska. The Bostwick project extends also into Kansas, but no construction is called for in Kansas at this time due to the fact that there has been litigation over the formation of an irrigation district in Kansas; and, while the matter has now been cleared up to some extent by the ruling of the Supreme Court of Kansas, the lower court has not yet taken up the matter of the repayment contracts. So, therefore, there is no estimate submitted in this budget for the Kansas portion of the project.

Last year, if you will recall, this committee instructed us to proceed with the Franklin canal of the Bostwick project, and that was concurred in by the Senate, and work is progressing on the Franklin canal, and that is partly responsible for the expanded program of this year over last year.

I will now proceed with my general statement.

PURPOSE OF BOSTWICK DIVISION

The primary purpose of the multiple-purpose Bostwick division is to provide a full water supply for about 90,000 acres of land along the Republican River in Nebraska and Kansas. Storage of water for this development is provided in the Harlan County Dam being constructed by the Corps of Engineers and the proposed Lovewell Dam and Reservoir in Kansas. In addition to Lovewell Dam and Reservoir, the project facilities will include three diversion dams, four pumping plants, and an extensive system of canals, laterals, and drains to serve the project acreage.

REPAYMENT CONTRACT

A repayment contract has been executed with the Nebraska Bostwick irrigation district for the payment of construction costs of the Nebraska portion amounting to $2,260,000. A contract has also been executed with the Kansas Bostwick irrigation district No. 2 for the payment of construction costs for the Kansas portion amounting to $3,500,000. However, at the time the petition was filed for confirmation of the contract between United States and Kansas Bostwick irrigation district No. 2, several landowners filed a petition in district court to enjoin the officers of the irrigation district and the district itself from proceeding pursuant to said contract. Judgment in the district court was for the plaintiffs. The defendants appealed, and the Kansas Supreme Court in December 1951 reversed the judgment of the district court and has denied a petition for rehearing. The main contentions of the plaintiffs in the district court were, first, that the provisions in the irrigation district's statutes at the time that the district was organized provided for any contract with the United States to be submitted to an election of the landowners in the district. Inasmuch as this provision was repealed by amendatory State legislation in March 1951, the plaintiffs' contention was that this repealing legislation was unconstitutional in that it was an act by a State breaching a contract. The supreme court held that such was not the case inasmuch as the State statute did not create a contract and, therefore, was not unconstitutional when repealed.

The second main contention of the plaintiffs was that the amendatory statutes conferred legislative powers on the district court by making provision for approving assessments to be made against individual tracts of land. The supreme court ruled, in effect, that this is not a delegation of legislative power inasmuch as all the court determined is whether any assessment as to any particular tract of land when properly challenged by the landowners was manifestly disproportionate. If so, the court could refuse to approve such assessment.

Construction of the Bostwick division was initiated in 1949 and by the end of the current fiscal year all work will be approximately 23 percent complete with a full water supply available for the irrigation of about 12,500 acres of new land. During fiscal year 1952, the Superior-Courtland diversion dam, the Superior Canal and laterals, and the Nebraska portion of the Courtland Canal and laterals will be completed and placed in operation. The House and Senate committee reports on the Department of Interior Appropriation Act for

1952 contained a proviso to the effect that the construction of the Franklin unit should be initiated with any funds available for the Bostwick division. In accordance with those instructions, construction contracts have been awarded for the Franklin South Side pumping plant, canal, and laterals, and this work will be completed by the end of the fiscal year. In addition, designs will be complete, contracts awarded, and construction started later in the fiscal year on the Franklin Canal and the section of the Courtland Canal located in Kansas.

PROGRAM FOR 1953

The major portion of the fiscal year 1953 program consists of the continuation of work on the latter two features, the Franklin Canal and Courtland Canal in Kansas. In addition, designs will be completed, contracts awarded, and construction initiated on the Franklin laterals and the Naponee Canal and laterals. Preconstruction work leading to award of construction contracts the following fiscal year will be continued on the Lovewell Dam and Reservoir.

ALLOCATION OF COSTS

Mr. NORRELL. Last year I asked some questions about the allocation of these costs to flood control. Do you have what this is going to be?

Mr. LINEWEAVER. We have an over-all allocation, Mr. Chairman, of the Missouri Basin that we will submit for the record.

The Missouri Basin development is considered as one project, and these units make up this over-all project. There is an over-all allocation to flood control and other purposes. I will submit the list for the record.

Mr. NORRELL. Can you insert a list showing the total amount in the Missouri Basin project for flood control and then show a break-down of that among the several projects?

Mr. LINEWEAVER. Yes, sir; we will give that for the phase A units if you desire.

(The information requested is as follows:)

Tentative allocation of total estimated costs, Missouri River Basin project in fiscal year 1953 budget

Irrigation	$2, 245, 125, 000
Power	685, 109, 000
Flood control	196, 936, 000
Municipal water	19, 468, 000
Fish and Wildlife	660, 000
Recreation	3, 647, 000

Tentative allocation of total estimated costs, phase A units in fiscal year 1953 budget, as of September 1951

Division and unit	Total estimated cost	Irrigation	Power	Flood control	Municipal water	Fish and wildlife	Recreation
Bostwick Division, Nebraska-Kansas	$47,930,000	$45,496,000		$2,292,000		$28,000	$114,000
Boysen Division, Boysen Unit, Wyoming	34,675,000	20,603,000	$7,802,000	5,968,000	$200,000		102,000
Cheyenne Division, Angostura Unit, South Dakota	13,752,000	12,340,000	660,000	525,000	19,000	13,000	195,000
Frenchman-Cambridge Division, Nebraska	66,577,000	48,760,000		17,362,000		72,000	383,000
Grand Division, Shadehill Unit, South Dakota	10,411,000	7,598,000		2,069,000	714,000	26,000	4,000
Heart Division, Heart Butte Unit, North Dakota	5,740,000	2,865,000		2,790,000		71,000	14,000
Helena-Great Falls Division, Canyon Ferry Unit, Montana	29,491,000	12,306,000	13,373,000	3,636,000		6,000	170,000
Missouri-Souris Division, Jamestown Unit, North Dakota	10,628,000	6,783,000		3,270,000	575,000		
North Dakota Pumping Division, Fort Clark Unit, North Dakota	646,000	646,000					
Oregon Trail Division, Glendo Unit, Wyoming	42,073,000		33,509,000	8,564,000			
Smoky Hill Division, Cedar Bluff Unit, Kansas	18,651,000	10,108,000		8,297,000		53,000	193,000
Solomon Division:							
Glen Elder Unit, Kansas	29,095,000	15,046,000		14,049,000			
Kirwin Unit, Kansas	18,187,000	10,737,000		7,418,000		12,000	20,000
South Platte Division, Narrows, Unit, Colorado	39,310,000	13,036,000		26,274,000			
Three Forks Division, Crow Creek Pump Unit, Montana	1,525,000	1,525,000					
Transmission division, various	308,871,000		308,871,000				
Upper Republican division:							
St. Francis unit, Colorado-Kansas	15,247,000	3,323,000		11,786,000		46,000	92,000
Yellowstone division:							
Cartwright unit, North Dakota	256,000	256,000					
Savage unit, Montana	559,000	559,000					
Sidney unit, Montana	614,000	614,000					
Total	694,238,000	212,601,000	364,215,000	114,300,000	1,508,000	327,000	1,287,000

BOYSEN DIVISION, BOYSEN UNIT, WYOMING

Mr. NORRELL. The next item will be the Boysen division, Boysen unit, Wyoming.

In this fiscal year you had an allotment of $1,900,000, and the estimate for 1953 is $610,000.

At this point pages 434 through 436 will be placed in the record.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$34,320,515
Total obligations to June 30, 1951		31,206,885
Allotment, fiscal year 1952	$1,900,000	
Prior year balance available	603,630	
Balance available in subsequent year	−200,000	
Transfer from project	−151,160	
Total obligations, fiscal year 1952		2,152,470
Allotment, fiscal year 1953	$610,000	
Prior year balance available	200,000	
Total obligations, fiscal year 1953		810,000
Balance to complete		151,160

JUSTIFICATION OF ESTIMATE

Location.—The Boysen Dam and power plant are located in Fremont County in central Wyoming on the Bighorn River, 21 miles south of Thermopolis, Wyo.

Description.—The project will supply 73,400,000 kilowatt-hours of electrical energy annually and provide 560,000 acre-feet for power and irrigation, 260,000 acre-feet of inactive storage, also 150,000 acre-feet for flood control.

Repayment.—Repayment for the cost of the project will be made from the sale of electrical energy.

Status.—Construction began during first quarter 1947; as of June 30, 1952, the project will be in operation. Work is continuing on Boysen Dam and appurtenant structures, Boysen power plant and switchyard, relocation of Highway 320, and relocation of Chicago & Northwestern Railroad. Clearing of Boysen Reservoir was completed in October 1951. Construction was initiated on Five Mile Creek Bridge and Muddy Creek Bridge and approaches. Boysen permanent camp will be completed.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 provides for the salvage of the temporary camp, the preparation of completion report and final data, and transfer to Operation and Maintenance Division. Funds are also provided for all necessary deferred construction in accordance with terms of contract for relocation of Chicago, Burlington & Quincy Railroad. Work will be completed on the Chicago & Northwestern Railroad relocation and sedimentation control on the reservoir area.

Justification.—The need for power in this area, which existed at the time of authorization, has become more acute since that time. With all major features now under construction it is necessary that the project be finished as expeditiously as possible to avoid excessive costs. The project is scheduled to produce power from both units by the end of June 1952. The total estimated cost of the project has been decreased from $34,693,060 to $34,675,000 (anticipated total obligations $34.320.515) due to estimated underruns in utility relocation costs.

Program item	Estimated total	Total to June 30, 1951	Program current, year 1952	Program budget, year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Boysen Dam and Reservoir	$28,222,000	$24,785,683	$2,843,621	$543,536	$49,160
Boysen power plant	5,045,000	3,082,058	1,615,132	347,810	----------
Boysen switchyard	684,000	272,235	369,556	6,209	----------
General property	760,000	571,950	73,550	12,500	102,000
Total cost	34,675,000	28,711,926	4,901,859	910,055	151,160
Construction facilities	----------	67,045	−41,445	−25,600	----------
Stores	----------	373,914	−323,914	−50,000	----------
Project investigations	----------	189,066	−189,066	----------	----------
Transfers, credits, and other expenditures	−354,485	−462,148	82,118	25,545	----------
Total expenditures	34,320,515	28,879,803	4,429,552	860,000	151,160
Unliquidated obligations	----------	2,327,082	−2,277,082	−50,000	----------
Total obligations	34,320,515	31,206,885	2,152,470	810,000	151,160
Method of financing:					
Allotment, fiscal year 1952	----------	----------	1,900,000	----------	----------
Prior-year balance available	----------	----------	603,630	200,000	----------
Balance available in subsequent years	----------	----------	−200,000	----------	----------
Transfer from project	----------	----------	−151,160	----------	----------
Allotment required	----------	----------	----------	610,000	151,160

RAILROAD RELOCATION DELAYS COMPLETION

Mr. NORRELL. Last year you stated this unit would be virtually completed. What is the need for the funds requested in 1953?

Mr. MARKWELL. This project, Mr. Chairman, was delayed somewhat by the difficulties in the tunnel work for the railroad relocation. The power plant will be in operation about July 1952.

The funds requested are to substantially complete the project.

I have a statement, sir, and then I will be glad to answer any further questions.

GENERAL STATEMENT

Boysen unit is an integral part of the Missouri River Basin project. Boysen power-plant site is located in norther Wyoming, Fremont County, on the Big Horn River at the head of Wind River Canyon. The location is approximately 20 miles south of Thermopolis, Wyo.

The power plant at Boysen will have an installed capacity of 15,000 kilowatts with an annual output of 68,000,000 kilowatt-hours. This plant is scheduled for operation by July 1952.

POWER REQUIREMENTS IN BIG HORN BASIN

Power requirements in the Big Horn Basin have already greatly exceeded power production within the basin. Power demands created by an increase in the oil development of the Basin and applications on file by REA cooperatives greatly exceed the present capacity of all plants furnishing power to this area. The powerplant at Boysen is strategically located in the center of a 300-mile transmission network between Shoshone power plant and the Seminoe power plant near Casper, Wyo. Power generated at Boysen can be transmitted either north or south to augment present inadequate output at each end of the transmission system.

PROJECT TO BE COMPLETED IN 1954

Mr. NORRELL. Do you think that this is an item that we may reasonably expect to get rid of in the next couple of years?

Mr. MARKWELL. Yes, sir; I do. The program for the next fiscal year, 1953, is $810,000 and the estimated balance to complete it is $151,161, which will be needed for clean-up work in the reservoir in fiscal year 1954.

TROUBLE WITH MOUNTAIN SLIDING

Mr. JENSEN. Did you have any recent trouble with the mountain sliding?

Mr. MARKWELL. Not recently, sir. That took place some time ago. It did delay us, but it is under control now.

Mr. JENSEN. Shortly after the mountain slid and pushed the tunnel out of shape pretty badly, I could see where it could be a source of trouble if not properly handled. You think you have old man mountain under control, do you?

Mr. MARKWELL. Yes, sir.

Mr. JENSEN. Good. That is all.

CHEYENNE DIVISION, ANGOSTURA UNIT, SOUTH DAKOTA

Mr. NORRELL. We will go now to the Cheyenne division, Angostura unit, South Dakota, of this project.

I believe that last year the allotment for this unit was $1,200,000, and the estimate for 1953 fiscal year is $1,158,000.

Pages 438 through 441 will be placed in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$13, 512, 779
Total obligations to June 30, 1951		10, 551, 238
Allotment, fiscal year 1952	$1, 200, 000	
Prior-year balance available	46, 541	
Transfer from project	−50, 000	
Total obligations, fiscal year 1952		1, 196, 541
Allotment, fiscal year 1953	$1, 158, 000	
Total obligations, fiscal year 1953		1, 158, 000
Balance to complete		607, 000

JUSTIFICATION OF ESTIMATE

Location.—The Angostura unit, in the southwest corner of South Dakota, is located on the Cheyenne River in Custer and Fall River Counties. The principal structure, Angostura Dam, is about 7 miles southeast of the city of Hot Springs. The unit works proper embraces an area of approximately 50 square miles. The proposed 49 Cheyenne pumping plants, located between the lower reaches of the Angostura unit and the east line of Ziebach County, are contained in a separate unit which will be augmented by controlled releases from the Angostura Dam.

Description.—The primary purpose of the unit is to provide a full water supply for the irrigation of an estimated 12,154 acres of semiarid lands along the Cheyenne River in South Dakota, and to assure a supply to about 25,300 acres in the Cheyenne pumping unit. The facilities of the unit consist of Angostura Dam and Reservoir, irrigation system, power plant, switchyard, and recreational facilities. The hydroelectric plant will have a capacity of 1,200 kilowatts, and the switching equipment is designed to market power at 12.5-kilovolts. The construction of the Angostura unit is scheduled to achieve the following objectives in the most orderly, economical manner: Impoundment of water for conservation purposes and control the Cheyenne River; delivery of irrigation water to approximately 4,000 acres during the last quarter of fiscal year 1952, and to the remainder of the lands in the Angostura unit as rapidly as orderly construction will permit; creation of water storage facilities for future development of irrigable land in the Cheyenne pumping unit; construction of a 1,200-kilowatt hydroelectric plant to supplement the existing power facilities in the Black Hills region; and construction of recreation facilities as planned by National Park Service and consistent with the needs.

Repayment.—A water service and repayment contract was executed May 29, 1951, with the Angostura irrigation district.

Negotiations for the sale of power to be produced at Angostura power plant were completed by execution of a contract between the Government and the Black Hills Power & Light Co. on September 19, 1950.

Status.—Construction began September 11, 1946. As of June 30, 1952, the unit will be approximately 92 percent complete. Construction will consist of continuation of work on the canal, laterals, surface drains; the remaining construction on the power plant and switchyard will be completed. An operation and maintenance organization will be formed, and delivery of water will be made in June of 1952. Land classification adjustments will be made where necessary because of farm unit development work. Settler's assistance and guidance program will be further developed. A caretaker's and power plant operator's permanent housing facilities will be completed at the dam site. Work will also continue on the wildlife habitat development.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 includes the completion of the remaining construction work on the canals, laterals, and surface drains, the transfer of the Soils Conservation Service headquarters buildings at Oral, S. Dak., to the Bureau for use of the operation and maintenance of the irrigation works, and also a minor amount of work in connection with wildlife habitat development and work on a settler's assistance program.

Justification.—The requirement for irrigation facilities in this area, which existed at the time of initial authorization, remain acute. With the dam and reservoir complete, power plant nearly completed, and the irrigation facilities under construction it is desirable to continue the planned construction on an

orderly schedule. The primary purpose of the unit will not be realized until the irrigation facilities are complete.

Program item (1)	Estimated total (2)	Total to June 30, 1951 (3)	Program current year 1952 (4)	Program budget year 1953 (5)	Balance to complete (6)
Construction program:					
Angostura Dam and Reservoir	$9,420,000	$9,416,123	$3,877		
Canals	2,518,000	245,641	1,410,382	$861,977	
Laterals	444,000	65,832	238,111	140,057	
Drains	564,000	21,001	94,350	46,003	$402,646
Farm unit development	29,000	280	1,000	7,500	20,220
Angostura power plant	345,000	259,244	85,756		
Angostura switchyard	62,000	16,808	45,192		
Angostura dam site camp	79,500	8,467	71,033		
General service facilities, oral	82,500		9,000	73,500	
Recreation facilities and Fish and Wildlife Service	208,000	27,256	4,000	2,000	174,744
Total cost	13,752,000	10,060,652	1,962,701	1,131,037	597,610
Construction facilities		32,277	−11,592	27,366	−48,051
Stores		10,888	−5,000	−5,688	
O. and M. during construction	35,744	15,744	5,000	15,000	
Transfers, credits and other expenditures	−274,965	−314,675	−8,216	−9,515	57,441
Total expenditures	13,512,779	9,804,886	1,942,893	1,158,000	607,000
Unliquidated obligations		746,352	−746,352		
Total obligations	13,512,779	10,551,238	1,196,541	1,158,000	607,000
Method of financing:					
Allotment, fiscal year 1952			1,200,000		
Prior year balance available			−50,000		
Transfer from project			46,541		
Allotments required				1,158,000	607,000

COMPLETION IN 1953

Mr. NORRELL. Will the program for 1953 complete the irrigation phase of this unit?

Mr. MARKWELL. Yes, it will substantially complete the irrigation phase. There will remain only some fish and wildlife work, which has been deferred.

Mr. NORRELL. Has the power plant been placed in operation?

Mr. MCPHAIL. Yes, sir; it has.

Mr. MARKWELL. We have a statement on this.

Mr. NORRELL. All right.

GENERAL STATEMENT

Mr. MARKWELL. The Angostura unit lies in the southwestern South Dakota on the Cheyenne River. The Angostura Dam, a concrete structure, was completed some time ago and the power plant of 1,200 kilowatts capacity and the switchyard will be completed in this fiscal year. The unit consists of the dam and reservoir of 220,000 acre-feet capacity, 90 miles of canals, conduits and laterals to supply water for some 12,154 acres of irrigable land and a drainage system to carry off surplus waters and prevent deterioration of land through seepage.

PROGRESS ON PROJECT

Work is progressing on the canal and lateral systems and we expect to bring into production with these facilities about 4,000 acres. The funds requested in fiscal year 1953 will be used for completion of these

works and doing further minor drainage work. With the completion of these features we will bring into development an additional 8,154 acres of new lands. It may be pointed out that with the dam completed and the reservoir stored with usable water, the primary purposes of this unit will not be fully realized until completion of the irrigation facilities so sorely needed in the area are accomplished.

REPAYMENT CONTRACT

The portion of the cost of construction of the Angostura Unit properly assignable to the Angostura unit water users for repayment is covered in a repayment and water service contract entered into on May 29, 1951, with the Angostura irrigation district. About 70 percent of the irrigable lands of the Angostura irrigation district are federally owned and controlled by the United States Department of Agriculture which through its Soil Conservation Service is currently developing the lands for irrigation prior to sale to individual settlers.

The portion of the Angostura unit construction costs not returnable by the Angostura irrigation district and the Angostura power plant will be covered by an eventual allocation of a portion of the Angostura Reservoir cost to the Cheyenne pumping unit, a nonreimbursable allocation to flood control, and from the pooled revenues of the Missouri River Basin project.

FRENCHMAN-CAMBRIDGE DIVISION, NEBRASKA

Mr. NORRELL. Next is the Frenchman-Cambridge division, in Nebraska.

I believe this project will cost about a total of $66,685,340 according to the present estimate, and you have for fiscal year 1952 an allotment of $7,800,000, and the estimate for 1953 is $2,043,000 with a proposed transfer to the project of $1,500,000.

Please insert pages 443 through 447 in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$66, 685, 340
Total obligations to June 30, 1951		35, 282, 472
Allotments, fiscal year 1952	$7, 800, 000	
Prior year balance available	966, 597	
Transfer from project	−87, 000	
Total obligations, fiscal year 1952		8, 679, 597
Allotment, fiscal year 1953	$2, 043, 000	
Transfer to project	1, 500, 000	
Total obligations, fiscal year 1953		3, 543, 000
Balance to complete		19, 180, 271

JUSTIFICATION OF ESTIMATE

Location.—The unit is located in southwest Nebraska in Hitchcock, Red Willow, Furnas, and Harlan Counties. Project lands extend from Palisade, Nebr., southeastward along Frenchman Creek and from Trenton, Nebr., eastward along the Republican River to Orleans, Nebr. Principal city in the project area is McCook, Nebr.

Description.—The major functions to be performed by the unit are irrigation and flood control. Water will be impounded by four dams: Trenton Dam on the

Republican River; Enders Dam on Frenchman Creek; Medicine Creek Dam on Medicine Creek; and Red Willow Dam (USCE) on Red Willow Creek. Enders and Medicine Creek Dams are complete and Trenton Dam is under construction. Combined capacity of the reservoirs is 472,000 acre-feet. Water will be delivered to a service area of 68,570 acres by a system of approximately 245 miles of canals. Trenton Dam will discharge water directly into a part of the canal system; the balance of the stored water, along with natural flow, will be diverted into the system of canals by two diversion dams on the Republican River and one each on Frenchman and Red Willow Creeks.

Repayment.—The Frenchman-Cambridge irrigation district, covering lands in the Cambridge and Red Willow units, and part of the Meeker-Driftwood and Frenchman units, has been formed and a repayment contract has been negotiated. It is a combination water service and repayment contract. The repayment obligation for construction charges for the distribution system is not to exceed $2,328,800. The irrigable lands not now included under the existing contract are partly in the existing Frenchman Valley irrigation district and partly outside the boundaries of any existing district. These lands will be organized under new districts or extensions of present districts or extensions of present district boundaries, and repayment contracts negotiated. Construction of the facilities to serve these lands is programed subsequent to the anticipated date of execution of additional repayment contract or contracts.

Status.—Construction was initiated in the Frenchman-Cambridge division with start of work on Enders Dam in March 1947. Enders Dam, Medicine Creek Dam, and the Cambridge Diversion Dam are complete. As of June 30, 1952, the entire division will be approximately 60 percent complete. Trenton Dam and Reservoir, representing nearly a third of the total cost of the division, will be approximately 85 percent complete. The first 20 miles of the Cambridge canal will be complete and construction under way on the next 10 miles, as well as the laterals which will be served by the first 30 miles of canal. The Bartley Diversion Dam and canal will be on the designing boards and collection of design data on remaining irrigation features will be advanced.

Work proposed, fiscal year 1953.—Program calls for completion of Trenton Dam and Reservoir and completion of first 30 miles of the Cambridge canal with relating laterals. The latter will bring over 7,000 acres of Cambridge unit lands under irrigation. Construction will be initiated on the Bartley diversion dam and canal, and collection of field data and design of remaining canals and laterals will be continued.

Justification.—Enders and Medicine Creek Reservoirs are presently storing irrigation water. Trenton Dam will be impounding water during fiscal year 1953. This water can be put to its designed use on project lands only upon completion of the division's canals and laterals. Any delay in the program proposed will therefore retard the achievement of the irrigated acreage with resultant loss of potential food productivity needed for national security.

Delay in the construction program will also result in increased overhead costs if the organization and construction facilities, presently employed, cannot be promptly utilized in furtherance of the remainder of the program. The flood-control function of the division's dams was spotlighted in the 1951 flood in the Kansas Basin. Flood flows originating above Enders and Medicine Creek Dams were retained by those structures and thereby prevented augmentation of the disastrous situation in the lower Kansas Basin.

The total estimated cost of the Frenchman-Cambridge division has been increased from $61,577,000 (total estimated obligations $66,685,340). The major portion of this increase is the result of modifications in the plan of development for the division which provides for an increase in the irrigable acreage from 57,730 acres to 68,570 acres. This modification involves some changes of nomenclature, relocation of certain features to bring in additional acreage and the addition of the McCook unit. The increase is partially compensated for by the revision of the Trenton Dam estimate as a result of the low bids received, indicating a probable savings of approximately $2,472,000.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Enders Dam and Reservoir	$8,400,000	$8,348,045	$40,000	$11,955	
Medicine Creek Dam and Reservoir	7,006,000	6,937,490	25,000	43,510	
Trenton Dam and Swanson Lake	21,853,000	7,799,133	10,930,000	2,633,867	$490,000
Cambridge diversion dam	550,000	544,304	5,696		
Temporary Meeker diversion dam	64,000	64,000			
Red Willow Creek diversion dam	433,000	7,849	1,000	2,000	422,151
Bartley diversion dam	432,000	6,836	15,000	285,000	125,164
Cambridge diversion dam extension	334,000	5,824			328,176
Culbertson diversion dam (rehabilitation)	60,000	990			59,010
Cambridge canal	6,040,000	3,309,289	674,000	959,000	1,097,711
Holbrook canal	522,000	9,748			512,252
Bartley canal	1,549,000	58,913	24,000	662,000	804,087
Red Willow canal	1,275,000	23,421	4,000	20,000	1,227,579
McCook canal	93,000	1,899		3,000	88,101
Upper Meeker canal	1,346,000	51,320	20,000	20,000	1,254,680
Driftwood canal	2,630,000	78,742	30,000	30,000	2,491,258
Meeker canal extension	719,000	36,559	20,000	20,000	642,441
Existing Meeker canal (rehabilitation)	168,000	168,000			
Culbertson canal	2,599,000	83,742	40,000	40,000	2,435,258
Culbertson canal extension	2,662,000	92,401	40,000	40,000	2,489,599
Beverly-Riverside canal	391,000	6,836	10,000	10,000	364,164
Farmers canal	43,000	990	1,000	1,000	40,010
Cambridge laterals	962,000	126,860	269,000	242,000	324,140
Holbrook laterals	17,000	990			16,010
Bartley laterals	228,000	12,089	8,000	161,000	46,911
Red Willow laterals	208,000	3,925		4,000	200,075
McCook laterals	27,000	990		2,000	24,010
Meeker-Driftwood unit laterals	949,000	17,471	20,000	20,000	891,529
Frenchman unit laterals	1,194,000	23,421	30,000	30,000	1,110,579
Cambridge unit drains	745,000	13,673			731,327
Red Willow unit drains	514,000	9,748			504,252
Meeker-Driftwood unit drains	649,000	11,647			637,353
Frenchman unit drains	905,000	16,585			888,415
Farm unit development	73,000	12,955	9,000	8,000	43,045
Frenchman-Cambridge general property	482,000	4,815	52,000	200,000	225,185
Recreation development	455,000		27,000		428,000
Total cost	66,577,000	27,891,500	12,294,696	5,448,332	20,942,472
Construction facilities		1,094,927	−125,000	−20,000	−949,927
Stores		572,032	100,000	−200,000	−472,032
Operation and maintenance during construction	108,340	24,490	83,850		
Transfers, credits, and other expenditures		74,190			−74,190
Total expenditures	66,685,340	29,657,139	12,353,546	5,228,332	19,446,323
Unliquidated obligations		5,625,333	−3,673,949	−1,685,332	−266,052
Total obligations	66,685,340	35,282,472	8,679,597	3,543,000	19,180,271
Method of financing:					
Allotment, fiscal year 1952			7,713,000		
Prior year balance available			966,597		
Transfer from other projects				1,500,000	
Allotments required				2,043,000	19,180,000

GENERAL STATEMENT

Mr. LINEWEAVER. I have a statement on this unit.

The Frenchman-Cambridge division is in southern Nebraska along the Republican River and its tributaries, and its prime functions are irrigation and flood control. Water will be impounded by four dams: Enders on Frenchman Creek, Medicine Creek Dam on Medicine Creek (both completed), Trenton Dam on the Republican River (under construction), and Red Willow Dam on Red Willow Creek (by USCE). Storage of water is to start behind Trenton Dam in Swanson Lake in July 1952, and storage in Red Willow Reservoir (USCE) will be available in fiscal year 1956. Trenton Dam will discharge water directly into a part of the canal system; the balance of the stored water and

natural flow will be diverted into the system of canals by two new diversion dams on the Republican River, one existing on Frenchman Creek and a new one on Red Willow Creek.

REPAYMENT CONTRACTS

Construction was initiated with the start of Enders Dam in March 1947. Besides the Enders and Medicine Creek Dams the Cambridge diversion dam is complete. A water service and repayment contract has been negotiated with the Frenchman-Cambridge irrigation district and confirmed by the court. The irrigable lands not now included under this existing contract will be organized under new districts or extensions of present district boundaries and repayment contracts negotiated. The repayment obligation for the distribution system is $2,328,800.

PROGRAM FOR 1953

Work which will be accomplished in fiscal year 1953 includes completion of Trenton Dam and Reservoir, completion of the first 30 miles of the Cambridge canal and related laterals, initiation of construction on Bartley diversion dam and canal, and continuation of field data compilations and designs of other canals and laterals.

FLOOD CONTROL

The recent devasting floods in Kansas highlight the successful flood control function of the Frenchman-Cambridge Dams. Flood flows originating above the dams will be retained by those structures and will substantially reduce the possibility of a repetition of the recent disastrous situation in the lower Kansas River Basin. This program is necessary to assure orderly and economical construction. Any delay will retard the intended use of stored water which will be available and will result in the loss of potential food productivity needed for national security. Delay will also result in increased overhead cost if the organization and construction facilities presently available cannot continue to be economically used.

STORAGE FACILITIES

Mr. NORRELL. Will the water-storage facilities be complete on this unit in 1953?

Mr. LINEWEAVER. Trenton Dam, which is the major remaining storage facility of the division or project, will be completed with the exception of about half a million dollars. That is the main-stream dam.

The smaller dams have been completed, Enders and Medicine Creek Dam, and the diversion dams have been completed.

CONTRIBUTION TO FLOOD CONTROL IN NEBRASKA-KANSAS AREA

Mr. NORRELL. What contribution will this unit make to the flood-control program in the Nebraska and Kansas area?

Mr. LINEWEAVER. It will make a substantial contribution. The Enders Dam on Frenchman's Creek and Medicine Creek Dam on Medicine Creek will retard the flow of tributaries of the Republican River and especially on Medicine Creek, whose flood got out of bounds

in 1947 and drowned 13 people in the town of Cambridge at its mouth. Medicine Creek has already demonstrated that it is able to retard the flow and protect that town and also reduce and regulate the volume of water that flows into the river.

Enders Dam will likewise retard the flow of Frenchman's Creek and regulate its flow into the Republican River.

Trenton Dam on the main stream of the Republican River is the structure that will regulate the main stream.

The river regulation studies indicate or rather show that the combination of these three dams together with Harlan County Reservoir down below, from which the Bostwick project will get its water, will place the Republican River under reasonably full control.

There is one other dam upstream from here, Bonny Dam, across the line in Colorado, near the headwaters of one of the tributaries of the Republican which will also contribute to the flood-control program.

REPAYMENT CONTRACTS

Mr. NORRELL. Give us a brief statement regarding your repayment contracts.

Mr. LINEWEAVER. The repayment contract on the Frenchman-Cambridge as has been stated, has finally been confirmed by the Nebraska courts and because of its importance I would like to submit for the record, as to the significance of that final court action on this repayment contract.

Mr. NORRELL. All right.

(The matter referred to is as follows:)

STATEMENT RE FRENCHMAN-CAMBRIDGE CONTRACT LITIGATION WITH SPECIAL EMPHASIS ON EFFECT OF 9 (E) TYPE CONTRACTS

On May 29, 1947, the Frenchman-Cambridge irrigation district of Indianola, Nebr., and the United States entered into a water-service and repayment contract in connection with the construction of the Frenchman-Cambridge unit of the Missouri River Basin project for the use of a part of the waters of the Republican River and its tributaries in the State of Nebraska. Thereafter this contract was submitted by the district to the district court of Red Willow County, Nebr., for confirmation pursuant to the Nebraska statutes as required by article 41 of the contract.

In response to objections of land owner to the confirmation of the contract, the court, by decree entered on July 19, 1950, refused to affirm, in whole or in part, articles 11 (c), 32, 33 (e), 35, 34 (b), and 33 (g) of the contract. The district undertook an appeal to the Nebraska Supreme Court. The supreme court, following oral argument on March 9, 1951, dismissed the appeal as being untimely and, accordingly, did not consider the matter on its merits (see Opinion of the Court, 46 N. W., 2d 692). While not a party to the confirmation proceeding, the Bureau of Reclamation, with the approval of the Attorney General of the United States, filed a brief amicus curiae in the Supreme Court of Nebraska. On June 30, 1951, the district ourt of Red Willow County, Nebr., approved and confirmed an amended contract consistent with its decree of July 19, 1950, which clarified and eliminated certain contract provisions in accordance with the Secretary of the Interior's administrative discretion pursuant to the requirements of the Federal reclamation law.

One of the objections made by the objecting landowner to the confirmation of the Frenchman-Cambridge contract dealt with the furnishing of water to the district pursuant to the authority of section 9 (e) of the Reclamation Project Act of August 4, 1939 (53 Stat. 1187, 1196; 43 U. S. C. 485h). This objection was specifically overruled by the district court of Red Willow County, Nebr., on July 19, 1950, when it approved part and disapproved part of that contract. The portion of the court's original ruling upholding the authority of the United States to furnish water under water service type contracts was reaffirmed when the court approved and confirmed the amended contract on June 30, 1951.

HELENA-GREAT FALLS DIVISION, CANYON FERRY UNIT, MONT.

Mr. NORRELL. We will now take up the Helena-Great Falls division, Canyon Ferry Unit, Montana.

The allotment for 1952 is $8,000,000, and for 1953, $4,754,000 is proposed for allotment to this unit.

Pages 450 through 453 will be placed in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$29,430,011
Total obligations to June 30, 1951		14,432,210
Allotment, fiscal year 1952	$8,000,000	
Prior year balance available	905,801	
Total obligations, fiscal year 1952		8,905,801
Allotment, fiscal year 1953	$4,754,000	
Total obligations, fiscal year 1953		4,754,000
Balance to complete		1,338,000

JUSTIFICATION OF ESTIMATE

Location.—The Canyon Ferry Dam is on the main stem of the Missouri River in west-central Montana, about 17 miles east of the city of Helena.

Description.—The Canyon Ferry Unit is a multiple-purpose development for irrigation, control of floods, regulation of the flow of the Missouri River, and generation of electrical energy. Principal features of the unit are the concrete dam, reservoir, and power plant consisting of three 16,666 kilowatt generating units. The reservoir will have a storage capacity of 2,043,000 acre-feet. The only direct irrigation provided by the construction of the dam and reservoir will be in connection with the Helena Valley Unit of the Helena-Great Falls division which will receive water pumped from the reservoir. The power plant will provide 50,000 kilowatts capacity to be integrated into a single power system with other Federal projects for which the Bureau of Reclamation is the marketing agent.

Initial gross power plant output is estimated at 320,000,000 kilowatt-hours annually, decreasing over the years in accordance with irrigation diversion requirements to 263,500,000 kilowatt-hours annually.

Status.—Construction began on the unit in fiscal year 1948 with construction of a Government camp and the relocation of roads in the reservoir. Construction of the dam and power plant was started in fiscal year 1949. As of June 30, 1952, the Canyon Ferry unit will be 80 percent completed. During fiscal year 1952, construction will continue on the dam, spillway, and power plant. A change will be made from first to second stage diversion of the river. Equipment, such as penstocks, river outlets, and gates will be installed. Deliveries will begin on turbines and generators for the power plant. Right-of-way acquisition is expected to be almost completed and reservoir clearing is expected to be about 37 percent complete. A program of construction of habitat development, as proposed by the Fish and Wildlife Service, was started.

Work proposed, fiscal year 1953.—Construction on the Canyon Ferry Dam and power plant will be continued. The unit will be 94 percent complete at the close of the year. Construction will continue on the dam, spillway, and power plant. Installation will be under way on equipment in the power plant, such as turbines and generators. Work on the dam structure will be almost complete. The prime contract will be almost complete.

Justification.—The unit is the key to further irrigation development in the Upper Missouri Basin and low cost power is needed for irrigation pumping and other purposes. With construction under the prime contract well under way and the major equipment ordered, it is necessary that the construction go ahead as scheduled.

Time under the prime contract will expire early in fiscal year 1954 and equipment is scheduled for delivery to meet the installation schedule. The construction schedule calls for completion of the installation of the three generating units in October of fiscal year 1953.

The total estimated cost of this unit has been decreased from $29,888,000 to $29,491,000 (anticipated total obligations $29,430,011) as a result of reduced foundation excavation and associated savings in concrete required.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Canyon Ferry Dam and reservoir	$20,590,000	$9,612,487	$5,449,938	$4,788,753	$738,822
Canyon Ferry power plant	7,072,000	1,273,416	3,220,192	2,064,426	513,966
Canyon Ferry switchyard	888,000	11,013	331,323	343,921	201,743
General property	764,600	710,651	20,000	13,000	20,949
Do	176,400	1,352	3,000	700	171,348
Total cost	29,491,000	11,608,919	9,024,453	7,210,800	1,646,828
Construction facilities		444,990	−80,559	−146,100	−218,331
Stores		52,624	50,000	−10,000	−92,624
Transfers, credits, and other expenditures	−60,989	−51,245	−11,171	−700	2,127
Total expenditures	29,430,011	12,055,288	8,982,723	7,054,000	1,338,000
Unliquidated obligations		2,376,922	−76,922	−2,300,000	
Total obligations	29,430,011	14,432,210	8,905,801	4,754,000	1,338,000
Method of financing:					
Allotment, fiscal year 1952			8,000,000		
Prior year balance available			905,801		
Allotments required				4,754,000	1,338,000

Mr. LINEWEAVER. Mr. McPhail will discuss this unit.

Mr. MCPHAIL. I have a statement, Mr. Chairman, and then I will be glad to answer any questions.

Mr. NORRELL. All right.

GENERAL STATEMENT

Mr. MCPHAIL. The Canyon Ferry Unit is a multiple-purpose development, the principal features of which are the Canyon Ferry Dam and power plant located on the Missouri River 17 miles east of Helena, Mont. The power plant and storage reservoir will make possible the maximum power development in the area above Fort Benton.

The power plant consists of three 16,667-kilowatt generators giving an installed capacity of 50,000 kilowatts with an average annual power generation of 284,000,000 kilowatt-hours. The Canyon Ferry power plant will be used primarily to serve loads in western Montana and will be interconnected with the Fort Peck transmission system.

Construction of Canyon Ferry Dam and power plant is approximately 60 percent complete as of January 1, 1952, and is scheduled for operation by November 1953.

Funds requested for fiscal year 1953 will be used primarily for the continuance of construction at the present or perhaps faster rate so the dam and power plant can be completed according to schedule to supply electrical energy to rural electric cooperatives in western Montana who are in urgent need of low cost power.

AVAILABILITY OF MATERIALS

Mr. NORRELL. Now, how about your materials and equipment? Are you obtaining materials and equipment on schedule to meet your generation date in the fall of 1954?

Mr. McPHAIL. We have been fairly successful. We have had some difficulty with materials, but we have been uniformly rather successful, I believe.

PURPOSE OF PROJECT

Mr. NORRELL. Does this project provide for any other purpose than power production?

Mr. McPHAIL. It will serve as a river control feature but primarily it is used for power production.

The initial operation is expected in November 1953.

MISSOURI-SOURIS DIVISION, JAMESTOWN UNIT, NORTH DAKOTA

Mr. NORRELL. The next unit will be the Missouri-Souris division, Jamestown unit, in North Dakota.

The allotment for 1952 for this unit is $500,000, and your estimate for fiscal year 1953 is $1,000,000.

Pages 455 through 458 of your justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$10, 768, 746
Total obligations to June 30, 1951		245, 770
Allotment, fiscal year 1952	$500, 000	
Prior year balance available	150, 976	
Total obligations, fiscal year 1952		650, 976
Allotment, fiscal year 1953	$1, 000, 000	
Total obligations, fiscal year 1953		1, 000, 000
Balance to complete		8, 872, 000

JUSTIFICATION OF ESTIMATE

Location.—This unit is located in Foster and Stutsman Counties in east central North Dakota. The reservoir extends about 40 miles north from Jamestown, and the irrigable area about 15 miles south from that city.

Description.—Jamestown unit comprises 22,000 acres of irrigable land, Jamestown Dam and Reservoir, a pumping plant and distribution system. The dam will provide much needed flood control for Jamestown and other cities and farm land in North Dakota and South Dakota. It will impound return flows from the Crosby-Mohall area for diversion to Jamestown unit irrigable lands, and serve the irrigable land in the Oakes Unit.

Repayment.—No repayment arrangements have been made. Jamestown Dam, a multiple-purpose feature of the Missouri-Souris Division, will be built initially for flood control. Therefore, no repayment agreement is required with any local organization prior to start of construction. Negotiation for municipal and irrigation water service and repayment contracts will be completed prior to completion of single-purpose works.

Status.—To provide for early flood control, construction of Jamestown Dam is scheduled to begin in fiscal year 1952. Design will include irrigation and municipal water as well as flood-control features. As soon as water is available from Crosby-Mohall and other areas, the irrigable land of the unit will be developed. A reconnaissance investigation was made of potential irrigable lands, and has been followed by semidetailed land-classification and drainage studies. Preliminary operation studies have been made for Jamestown Reservoir. Preliminary designs and estimates for Jamestown Dam have been completed by the Chief Engineer's office. Extent of past floods has been investigated and flood-control requirements and estimates of benefits were furnished by the Corps of Engineers. Arrangements have been made with the United States Public Health Service and

the State Health Department for cooperative pollution-abatement studies now under way for James River. Studies made on the operation of Jamestown Reservoir indicate that relocation of the entire Arrowwood National Waterfowl Refuge is apparently unnecessary. The National Park Service has completed studies on recreational facilities required at the reservoir. The definite plan report justifying Jamestown Dam on the basis of flood control was completed in December 1951, and approved by the Commissioner January 1952. Construction designs are to be completed soon on Jamestown Dam, contracts awarded, and construction started in the spring of fiscal year 1952. Right-of-way for the dam and areas adjacent to it will be acquired.

Work proposed, fiscal year 1953.—Construction of Jamestown Dam will be continued. Contracts for gates, hoists, trashracks, and other equipment will be awarded early in the year. Acquisition of reservoir right-of-way will continue. Specifications will be issued and a contract awarded for clearing the wooded portions of the reservoir area.

Justification.—Jamestown Dam, while a multiple-purpose dam of the Missouri-Souris development, is urgently needed now for immediate relief from disastrous floods affecting the city of Jamestown, N. Dak., and surrounding area. It will provide 230,000 acre-feet of storage for initial flood control and municipal water, and later irrigation development.

In the light of the recent events in Kansas, construction of this dam should no longer be postponed. Jamestown has suffered a recurrence of disastrous floods, similar but on a smaller area to the recent Kansas disaster, and preventative steps are necessary to stop further losses of lives and property. The citizens of Jamestown, and their municipality, have repeatedly urged immediate construction of the dam so they can take advantage of its flood protection while other facilities of the unit are being built. The State of North Dakota has also urged construction at the earliest possible date. In Senate Report No. 1941 on the 1951 appropriation bill, the Senate recommended that construction be undertaken in 1951. However, the funds were impounded under section 1214 of that act. In 1948 over one-fifth of the entire city was flooded and damage was estimated at over $600,000. In 1950 a repetition on a larger scale took place, flooding out 2,500 to 3,000 people, and causing severe economic loss.

A supplemental appropriation act for 1952 approved on November 1, 1951, provided funds for the start of construction because of the urgent need for flood relief.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Jamestown Dam and Reservoir	$6,331,000	$48,981	$430,000	$1,295,000	$4,557,019
Pumping plant	445,000				445,000
Canals and conduits	965,000				965,000
Laterals	1,116,000				1,116,000
Drains	1,489,000				1,489,000
Farm-unit development	93,000				93,000
Distribution lines and substations	65,000				65,000
General property	124,000				124,000
Total cost	10,628,000	48,981	430,000	1,295,000	8,854,019
Construction facilities		29	29,708	14,000	−43,737
Unit investigations		117,252	−51,000	−64,000	−2,252
Transfers, credits, and other expenditures	140,746	76,776			63,970
Total expenditures	10,768,746	243,038	408,708	1,245,000	8,872,000
Unliquidated obligations		2,732	−2,732		
Estimated unliquidated obligations			245,000	−245,000	
Total obligations	10,768,746	245,770	650,976	1,000,000	8,872,000
Method of financing:					
Allotment, fiscal year 1952			500,000		
Prior-year balance available			150,976		
Allotments required				1,000,000	8,872,000

Mr. NORRELL. Will you describe this project?

Mr. LINEWEAVER. Yes, Mr. Chairman. I will be glad to answer any questions after I read a statement.

GENERAL STATEMENT

The Jamestown Unit, in east central North Dakota, is for the purpose of flood control, irrigation, and municipal water supply. By the second supplemental appropriation bill, 1952, the Secretary of the Interior was directed to initiate construction of the unit for flood control and other purposes, and moneys were appropriated therefor.

DEFINITE PLAN REPORT APPROVED

The definite plan report has been approved and designs for the dam have been prepared so that specifications will be issued about February 1 and the main construction contract will be awarded in March and contracts for gates, hoists, trashracks and other equipment will be awarded early in fiscal year 1953. Construction for relocation of the railroad and highways and clearing of reservoir lands are to follow late in fiscal year 1953.

It is essential that construction continue in an orderly manner to provide the much needed flood protection for Jamestown and other cities and farm land in North and South Dakota. It is anticipated that water impoundment will start early in fiscal year 1955. Normally, the Jamestown Dam, as an integral part of the general irrigation plan for the Missouri-Souris Division, would be one of the last major structures to be built. However, it is now urgently needed for flood control. Therefore, work on the irrigation facilities, such as pumping plant, canals, laterals, and drains, will not be initiated immediately except for that of an investigation nature.

FLOOD CONTROL FEATURES

Mr. NORRELL. Is there anything being done regarding flood control at this time on this project?

Mr. LINEWEAVER. This project at this time is primarily for flood control but will also have irrigation features that are deferred. It has been before the Congress on several occasions, and finally last November an appropriation was included in the last supplemental appropriation bill. The advertisements for bids will be out shortly, and we expect to begin construction this spring.

Mr. JENSEN. It is a fact, is it not, that most of this will be charged to flood control?

Mr. LINEWEAVER. Yes, sir, and the present dam, Mr. Jensen, is being constructed immediately for flood control but it will have important water-conservation features, that will be available for irrigation when the irrigation interests are ready, but the present program contemplates the dam for emergency flood control, for the protection of the city of Jamestown and the area below that.

IMPORTANCE OF FLOOD CONTROL

Mr. JENSEN. We know, of course, that there have been some terrible floods on the James River in the past few years. In fact, there are already some bad floods in the area of Jamestown and dams were built primarily to alleviate that condition. So, we know that most of the expenditure will be flood control. Therefore, I will say this, that

any dam for the purpose of flood control is justified, and this one certainly is a dam that is justified for that purpose.

Mr. LINEWEAVER. Yes, sir; and I may add that it will serve a dual purpose. There will be about 100,000 acres of irrigable land there that can be served from the waters conserved and without interfering with the flood-control facilities.

PORTION REPAYABLE

Mr. NORRELL. How much of this sum of money will be repayable; not very much, is it?

Mr. LINEWEAVER. Yes, sir, all except the flood-control allocation is repayable.

Mr. NORRELL. Is anything charged to navigation?

Mr. LINEWEAVER. Flood control, power, and irrigation are included as the principal purposes for allocations, but there is nothing for navigation.

Municipal water and irrigation will repay, of course, as well as power. Detailed allocations for the entire Missouri River Basin project were submitted for the record previously. (See p. 982.)

Mr. NORRELL. You do not collect for navigation, do you?

Mr. LINEWEAVER. There is no navigation allocation in our part of the Missouri Basin project. The corps, however, does have substantial navigation allocations on the main-stream dams and reservoirs.

NORTH DAKOTA PUMPING DIVISION, FORT CLARK UNIT, NORTH DAKOTA

Mr. NORRELL. The next item will be the North Dakota pumping division, Fort Clark unit, North Dakota.

The allotment this year, fiscal year 1952, was $100,000, and the estimate for fiscal year 1953 is $57,000.

Pages 460 through 462 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$602,741
Total obligations to June 30, 1951		101,397
Allotment, fiscal year 1952	$100,000	
Prior-year balance available	325,344	
Total obligations, fiscal year 1952		425,344
Allotment, fiscal year 1953	$57,000	
Total obligations, fiscal year 1953		57,000
Balance to complete		19,000

JUSTIFICATION OF ESTIMATE

Location.—This unit is located on the right bank of the Missouri River in Mercer County in west-central North Dakota, near the towns of Stanton and Fort Clark.

Description.—Fort Clark unit is one of 15 separate units of the North Dakota pumping division located along the Missouri River from Williston to the North Dakota-South Dakota State line. Of approximately 69,000 irrigable acres in the entire division, there are 2,100 acres in Fort Clark unit. Water will be delivered to the lands of the unit by pumping from the Missouri River with electrically driven pumps. The main plant will be constructed to pump water to land at

two elevations; the lower land lies about 30 feet above the river, and the remainder about 75 feet above. Two relift pumping plants, in addition to a system of canals and laterals, are required to serve the land of the unit.

Repayment.—By a vote of 72 to 0, of a possible 80, an irrigation district was established November 23, 1948. The irrigation repayment contract has been executed and approval by the State court. Part of the construction cost will be repaid from power revenues from the Missouri River Basin project.

Status.—This unit is expected to serve as a pilot installation for the other units of the North Dakota pumping division. Water will be available for irrigation in the spring of 1953. Specifications for the canals, laterals, and drains have been prepared, the pumping-plant equipment specifications completed, and a contract awarded for construction. The definite plan report has been approved. The land in the unit has been appraised. By June 30, 1952, construction of irrigation facilities will be over 30 percent complete.

Work proposed, fiscal year 1953.—Construction will be completed in the first half of the year on all features of the unit except part of the drains, the exact need for which is to be determined after irrigation has been practiced for awhile.

Justification.—This area is subject to recurring droughts which cause a fluctuating economy. Irrigation will stabilize the economy of the unit and a considerable area adjacent to it, allow a diversification of agriculture, and strengthen the livestock industry.

The total estimated cost of the unit has been increased from $604,000 to $646,000, due to rising construction and investigation costs (anticipated total obligations are $602,741.)

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Pumping plants	$353,000	$47,141	$110,688	$195,171	
Canals and conduits	149,000	8,854	54,146	86,000	
Laterals	58,000	4,562	25,438	28,000	
Drains	56,000	1,446	18,554	17,000	$19,000
Farm-unit development	9,000	1,117	3,883	4,000	
Distribution lines and substations	21,000	241	14,759	6,000	
Total cost	646,000	63,361	227,468	336,171	19,000
Construction facilities			10,000	−9,600	−400
Unit investigations		34,904	1,096	−36,000	
Transfers, credits, and other expenditures	−43,259	912		−44,571	400
Total expenditures	602,741	−99,177	238,564	246,000	19,000
Unliquidated obligations		2,220	186,780	−189,000	
Total obligations	602,741	101,397	425,344	57,000	19,000
Method of financing:					
Allotment, fiscal year 1952			100,000		
Prior-year balance available			325,344		
Allotments required				57,000	19,000

Mr. NORRELL. Will you explain this?

GENERAL STATEMENT

Mr. LINEWEAVER. Yes, sir; I have a statement, Mr. Chairman. This will be practically completed in 1953.

The Fort Clark unit is the first of 15 separate units of the North Dakota pumping division to be developed along the Missouri River from Williston, N. Dak., to the North Dakota-South Dakota State line. Of approximately 69,000 irrigable acres in the entire pumping division, there are about 2,100 acres in the Fort Clark unit. Water will be delivered to the irrigation system serving the lands of the Fort Clark unit by pumping from the Missouri River with electrically driven pumps. Two relief pumping plants in addition to a system of canals and laterals are required to serve the lands of the unit.

REPAYMENT CONTRACT

A water service and repayment contract was entered into with the Fort Clark irrigation district on May 22, 1951, and the contract has been validated by court action. The cost of construction of the Fort Clark unit will be returned in part by the water users and in part from net power revenues and other revenues of the Missouri River Basin project.

CONSTRUCTION CONTRACT AWARDED

The contract for construction of the Fort Clark pumping plant and irrigation works was awarded December 29, 1951. Construction of the unit is scheduled to begin in the spring of 1952 and is expected to be sufficiently near completion in the spring of 1953 to permit the delivery of water for irrigation at that time.

The Fort Clark unit will serve as a demonstration and pilot installation for the other units of the North Dakota pumping division. Development of irrigation on the Fort Clark unit and on the other units of the division will aid considerably in the stabilization of the economy of the area by providing a much needed irrigated feed base for the livestock industry and by permitting a greater diversification of crop production.

Mr. NORRELL. Frankly, I would just as soon you ask for a little more here so we would not have this project next year.

Mr. LINEWEAVER. Well, $19,000 is far in the future. We do not have a schedule for next year, for 1954.

OREGON TRAIL DIVISION, GLENDO UNIT, WYOMING

Mr. NORRELL. The next item is the Oregon Trail Division, Glendo unit, Wyoming.

You had an allotment for this fiscal year 1952 of $275,000, and you are requesting in your estimate for fiscal year 1953 $100,000.

Pages 464 through 467 will be placed in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$42,049,157
Total obligations to June 30, 1951		497,532
Allotment, fiscal year 1952	$275,000	
Prior year balance available	282,002	
Transfer from project	−150,000	
Total obligations, fiscal year 1952		407,002
Allotment, fiscal year 1953	$100,000	
Total obligations, fiscal year 1953		100,000
Balance to complete		41,044,623

JUSTIFICATION OF ESTIMATE

Location.—Glendo Dam will be located on the North Platte River approximately 6 miles southeast of Glendo, Wyo. Fremont Canyon power plant will be located between the backwater of the present Alcova Reservoir and Pathfinder Dam.

Description.—Present investigations for Glendo Dam indicate that a dam sufficient in size to create a reservoir of 800,000 acre-feet of capacity will be constructed. A dam of this capacity will provide means for conserving early runoff water that

has been lost in previous years and, in addition will conserve 70,000 acre-feet of runoff which at present cannot be impounded and is lost due to the lack of facilities to store sectional gains in the river. The reservoir will also alleviate silting problems inasmuch as Guernsey Reservoir, due to a deposition of silt, is decreasing in capacity at the rate of 1,200 acre-feet per year. Due to an ever-increasing demand for irrigation pumping, a power plant of 24,000-kilowatt capacity will be constructed, which will provide electrical energy during the summer months when it is urgently needed.

In addition, space has been provided for the reregulation of water released from upstream reservoirs for the purpose of generating electricity at the Alcova and Fremont Canyon power plants. At the present time, the plan is not to include irrigation in the operation of the Glendo Reservoir but rather use the sectional gain for generation of power. Under an alternate plan of operation, however, it is possible to supply some 42,640 acres of land below the proposed Glendo site with a supplemental supply of water.

The Fremont Canyon power plant has been added to the Glendo unit as a feature of that unit. The total installed capacity will be 48,000-kilowatts. This plant will generate electrical energy 12 months of the year and will utilize the Glendo Reservoir for reregulation of the water passing through.

Repayment.—Repayment for the cost of this project will be made from the sale of electrical energy in accordance with the prescribed provisions as authorized by Congress.

Status.—Preliminary investigations were commenced during fiscal year 1946. Original studies and preliminary designs were based on a reservoir of 150,000 acre-feet capacity. It was determined that this size would not be feasible so operation studies, water-supply studies, and power studies were revised and incorporated into a definite-plan report for submittal to the States of Wyoming, Colorado, and Nebraska. This report is based on a reservoir of 800,000 acre-feet capacity. The definite-plan report has been submitted to the three States for comment and will be revised accordingly.

Sufficient field information has been gathered to prepare a feasibility report on the proposed Fremont Canyon power plant. The Glendo definite-plan report is scheduled to be submitted in final form to the Congress by June 30, 1952 in accordance with the wishes of Congress as set forth in the fiscal year 1951 and 1952 Interior Appropriation Acts.

Work proposed, fiscal year 1953.—This year's program provides for necessary review and revisions to the Glendo definite-plan report and for collection of additional design data.

Justification.—Because of the demands for power in the Wyoming, northern Colorado, and Nebraska area that is apparent for the next several years, construction of Glendo and Fremont Canyon power plants should be started as soon as possible. Continued advancement of the stage of design data as well as preparation of plans and specifications for all features of the Glendo unit will assure readiness for a construction start at the earliest possible date. Continual increase in demand for commercial power dictates this action and assuming actual start of construction in fiscal year 1954 power will be available for public use late in fiscal year 1957. The total estimated cost has been decreased from $44,834,000 to $42,073,000 (anticipated total obligations, $42,049,157). This decrease is based on the revised estimates contained in the definite-plan report published in May 1951. Several features reflect minor adjustments but the Glendo Dam and Reservoir account for the major portion of the decrease.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Glendo Dam and Reservoir	$18,655,000		$225,000	$100,000	$18,330,000
Glendo power plant	5,771,000		175,000		5,596,000
Fremont Canyon power plant	14,740,000				14,740,000
Glendo substation	947,000				947,000
Fremont Canyon switchyard	864,000				864,000
General property (Glendo)	700,000	$18,504			681,496
General property (Fremont)	396,000				396,000
Total cost	42,073,000	18,504	400,000	100,000	41,554,496
Construction facilities		12,731	3,000		−15,731
Stores		6,029			−6,029
Project investigations		465,232	22,881		−488,113
Operation and maintenance during construction					
Transfers, credits, and other expenditures	−23,843	−7,843	−16,000		
Total expenditures	42,049,157	494,653	409,881	100,000	41,044,623
Unliquidated obligations		2,879	−2,879		
Total obligations	42,049,157	497,532	407,002	100,000	41,044,623
Method of financing:					
Allotment, fiscal year 1952			275,000		
Prior year balance available			282,002		
Transfer from project			−150,000		
Allotments required				100,000	41,045,000

Mr. NORRELL. You can make any statement you desire to make at this time regarding this project.

Mr. LINEWEAVER. Mr. McPhail will do that.

Mr. MCPHAIL. I have a statement, and I will be glad to answer any questions, Mr. Chairman.

Mr. NORRELL. All right.

GENERAL STATEMENT

Mr. MCPHAIL. The draft of the definite-plan report, completion of which is required by provisions of recent appropriation acts, was completed by our regional director last summer and circulated to the affected States for their comments. Action on the report is being held up pending receipt of comments from the States and reconciliation of their differences. Considerable questions remain to be resolved in connection with the 1945 Supreme Court decree which governs the use of waters of the North Platte River. Until there is a better understanding of the extent of these questions, it is not possible to predict when we will be able to submit the report to the Secretary of the Interior for approval and ultimately transmit it to the Congress. Funds are required during fiscal year 1953 to continue working with the States on this unit.

PURPOSE OF REQUEST

Mr. NORRELL. Is the estimate for continued planning only?

Mr. MCPHAIL. This is primarily to complete work with the States and clarify the status of the Glendo unit for planning work.

Mr. NORRELL. The construction has not really been started, has it?

Mr. MCPHAIL. No, it has not; sir.

Mr. NORRELL. Is it primarily for power or reclamation?

Mr. MCPHAIL. It has substantial power features and also will provide additional control and conservation of the river water.

Mr. NORRELL. Is it an item that might be deferred until after the emergency?

Mr. MCPHAIL. It is an item involving power generation which is quite important in our opinion to the emergency.

RELATIONSHIP WITH NATIONAL DEFENSE

Mr. NORRELL. Is it connected in any way to the national defense?

Mr. MCPHAIL. Only to the extent it will supply loads which contribute to the national defense. For instance defense industries, the production of oil, and other related manufacturing that do finally have an effect upon the defense effort.

Mr. NORRELL. Do you expect to try to start actual construction with this money?

Mr. MCPHAIL. No, sir.

Mr. NORRELL. Mr. Jensen?

DIFFERENCES WITH STATES

Mr. JENSEN. Are all the differences between the States reconciled?

Mr. LINEWEAVER. No, sir; I was just about to call attention to the prohibition in the appropriation bill that has been in for the last couple of years against any expenditures for construction funds until an agreement is reached with the States and that agreement approved by the Congress; and the agreement has not been fully consummated.

SOLOMON DIVISION, GLEN ELDER UNIT, KANSAS

Mr. NORRELL. We will now go to the Solomon Division, Glen Elder unit, in Kansas.

No allotment for construction has been made for this unit. You are asking in your budget estimate this year, fiscal year 1953, for $3,620,000.

Pages 469 through 472 will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$29,190,000
Allotment, fiscal year 1953	$3,620,000	
Total obligations, fiscal year 1953		3,620,000
Balance to complete		25,570,000

JUSTIFICATION OF ESTIMATE

Location.—This unit is located in north central Kansas on the Solomon River in Mitchell, Osborne, and Ottawa Counties. The site for Glen Elder Dam, the principal feature, is adjacent to the town of Glen Elder in Mitchell County. Project lands, situated along the north side of the river, extend from Glen Elder, Kans., to approximately 7 miles south of Delphos, Kans., in Mitchell, Cloud, and Ottawa Counties.

Description.—The major functions to be performed by the Glen Elder unit are irrigation, flood control, and sediment retention. Facilities will include the Glen Elder Dam and Reservoir and Glen Elder canal, with related laterals and drains. A total of 26,000 acres of land along the north side of the river is to be irrigated.

Repayment.—No irrigation district has been formed and consequently repayment negotiations have not been initiated. The current budget request is for the construction of dam and reservoir only, start of which is to be made during

fiscal year 1953. Construction of purely irrigation facilities will be deferred pending the consummation of a repayment contract.

Status.—As of June 30, 1952, all field data for Glen Elder Dam and Reservoir will have been completed and the final design data will be virtually complete. Bids will be advertised for by September 15, 1952.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for the completion of plans and specifications, award of contract, and initiation of construction on Glen Elder Dam and Reservoir. The program also provides for the initiation of rights-of-way acquisition for the dam and reservoir, and the construction or acquisition of required construction facilities.

Justification.—The Solomon River was a major contributor during the recent 1951 floods along the Kansas and Missouri Rivers. An important part of the flood picture in the Solomon River basin is the frequency with which floods occur. During the period 1945 through 1950, the Solomon River had overflowed its banks 32 times. Glen Elder Dam, being a multiple-purpose reservoir, will provide flood protection that will aid in controlling any future flood of such consequence. Thus, there is an urgent need for early construction of the authorized or approved reservoirs in the Pick-Sloan plan, all of which would be necessary to effectively control similar disasters. There is also an urgent need for irrigation water in this area. Frequent crop failures, causing serious hardships, occurred during the 1930–40 decade of severe drought. All but a few acres of land in the irrigable area have been dry-farmed with fair success, in most years, however, irrigation will stabilize the crop and livestock production in the area.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Glen Elder Dam and Reservoir	$23,500,000			$2,380,000	$21,120,000
Irrigation facilities	5,595,000				5,595,000
Total cost	29,095,000			2,380,000	26,715,000
Construction facilities				200,000	−200,000
Stores				40,000	−40,000
O. and M. during construction	95,000				95,000
Total expenditures	29,190,000			2,620,000	26,570,000
Unliquidated obligations				1,000,000	−1,000,000
Total obligations	29,190,000			3,620,000	25,570,000
Method of financing allotment required				3,620,000	25,570,000

Mr. NORRELL. You may proceed, Mr. Lineweaver.

GENERAL STATEMENT

Mr. LINEWEAVER. Yes, Mr. Chairman. That is the single new start of a reclamation project or unit that is in the budget estimate for fiscal year 1953. I have a statement here.

The Glen Elder Reservoir on the Solomon River is one of the series of reservoirs required for control of floods in the Kansas River Basin. In recognition of its importance for this purpose, preliminary work of planning for the Glen Elder Dam is being accomplished through the use of funds appropriated for Kansas River Basin planning. Because of the head start that has thus been made, the requested appropriation will permit us to move ahead rapidly and complete the plans and specifications, award the construction contract, and initiate construction on this unit. The dam will be designed for multiple purpose use but because an irrigation district has not been formed, construction of purely irrigation facilities will be deferred until such a district has been formed

and a repayment contract negotiated. When completed, this reservoir will have a significant beneficial effect on the flood losses experienced annually along the Solomon River below the dam and, operated in harmony with the other reservoirs of the proposed Kansas River Basin system, will help in preventing damages from major floods downstream in the Kansas River Basin such as that which occurred in July of 1951.

Also, Mr. Chairman, I have a statement on the proposed revision of total estimated cost which has been brought about as a result of conferences between the Bureau and the Corps of Engineers, with the indicated estimated cost being approximately $40,000,000.

The Glen Elder unit is located in north-central Kansas on the Solomon River which was a major contributor during the recent floods in the Kansas River Basin. The 1951 floods in this area greatly exceeded those of record and necessitated a revision in the required reservoir storage capacity for control of future floods.

CAPACITY OF RESERVOIR

Studies of the Glen Elder Dam prior to 1951 indicated a reservoir capacity of 425,000 acre-feet as sufficient.

Cooperative studies by the Bureau of Reclamation and the Corps of Engineers since the 1951 floods and based on new data made available at that time have indicated that the reservoir capacity for this structure should be substantially increased. Studies to determine the optimum capacity are now proceeding and preliminary results indicate a capacity of from 800,000 to 995,000 acre-feet as necessary. Based on the original reservoir capacity figures, the total estimated cost of the Glen Elder unit had been estimated at $29,095,000. The major revisions to the structures originally contemplated which will be necessary if a larger capacity reservoir is decided on will necessitate a substantial upward revision in the estimate of cost. A complete reestimate will be made as soon as studies now in progress are completed. Present incomplete data indicate that the new estimated cost of the Glen Elder project will approximate $40,000,000.

FLOOD-CONTROL FEATURES

Mr. NORRELL. Does this unit have any bearing on the flood-control situation in that area of Kansas?

Mr. LINEWEAVER. Yes, sir. I have a statement on the flood situation.

The floods of July 1951 exceeded any others that have occurred in eastern Kansas since 1844, and aroused many to the dire need of permanent flood protection measures. This flood resulted mainly from extreme flows in the Kansas (or Kaw) River Basin, but was aggravated by flows on the main stem of the Missouri River.

At Bonner Springs, Kans., a short distance above Kansas City, the Kansas River carried a peak flow of 510,000 second-feet. At Kansas City, below the mouth of the Kansas River, the peak flow of the Missouri River was 573,000 second-feet, and at Herman, Mo., the peak was 528,000 second-feet. The results of these flows are well known.

EFFECTIVENESS OF RESERVOIRS IN FLOOD CONTROL

The effectiveness of reservoirs in reducing flood flows may be illustrated by the performance of the reservoirs that have been or are being developed in the basin. Cedar Bluff Reservoir on the Smoky Hill River reduced the flood flows at that point from 23,000 second-feet to 1,750 second-feet. Medicine Creek Reservoir in the Republican River watershed reduced the flows from 13,000 second-feet to 600 second-feet, Enders Reservoir in the Republican River watershed cut the flow from 11,000 second-feet to 95 second-feet, Bonny Reservoir on the Republican River watershed reduced the flows from 1,000 second-feet to 80 second-feet; these are all reservoirs recently completed by the Bureau of Reclamation.

Trenton Dam on the Republican River is still under construction by the Bureau of Reclamation but its reservoir was able to reduce the flood peaks somewhat. Likewise, Kanopolis Reservoir on the Smoky Hill River, being developed by the Corps of Engineers, was able to reduce the flow from 18,500 second-feet to 1,100 second-feet. Cedar Bluff and Kanopolis working together were so able to reduce the flows at Salina, Kans., that damage was relatively light and resulted from tributaries below Kanopolis Dam.

These existing reservoirs along with the Swanson Reservoir, still being developed, have a combined storage capacity of about 970,000 acre-feet and were able to have a noticeable effect on the flood.

The Kirwin, Webster, Wilson, and Glen Elder Dams would provide a combined flood-control and irrigation storage of 1,238,000 acre-feet.

In addition, these reservoirs would have an additional 680,000 acre-feet of surcharge capacity (superstorage) which would be helpful in reducing extreme floods, worse even than the one in 1951, but over which full control cannot be maintained at all times.

Reservoirs alone cannot prevent all of the damage of a flood such as that experienced last year in the Kansas River Basin, but reservoirs in conjunction with downstream protective works can minimize such flood damages. From a practical standpoint, some areas cannot receive protection either from local protection works or from reservoirs, so complete elimination of all flood damages cannot be expected. On smaller floods the control would be even more effective.

REPORT ON GLEN ELDER DEVELOPMENT

I also have, Mr. Chairman, the latest report dated January 18 1952, from the regional director at Denver, Colo., Mr. Batson, on the Glen Elder development, which is informative and which brings both us and the committee up to date on the plans for Glen Elder.

I would like to submit that for the record.

Mr. NORRELL. All right.

(The report referred to is as follows:)

REGIONAL OFFICE, REGION 7,
BUILDING 46, DENVER FEDERAL CENTER
Denver, Colo., January 18, 1952.

To: Commissioner.
From: Director.
Subject: Glen Elder unit, Solomon division, Missouri River Basin project.

1. This is a brief report on the plan of development and status of investigations of the Glen Elder Unit of the Missouri River Basin project. The unit is located on the Solomon River in Kansas below the junction of the North and South

forks of the Solomon. The damsite is in the vicinity of Glen Elder in Mitchell County, Kans. and project lands lie on the north side of the Solomon River extending eastward through Mitchell County, across the southwest corner of Cloud County, and terminating in the vicinity of Minneapolis, Kans. in Ottawa County.

ORIGINAL PLAN

2. Glen Elder Unit was approved as a part of the comprehensive plan for the Missouri River Basin in Senate Document No. 191, Seventy-eighth Congress, second session, April 1944. It was specified as one of six developments in the Smoky Hill River Basin needed for stream regulation to provide for irrigation and flood control. In downstream areas along the Solomon, Saline, and Smoky Hill Rivers there is a definite need for flood control. In the original plan the capacity of Glen Elder Reservoir was indicated to be 304,000 acre-feet to serve irrigation, flood control, and silt control. It was contemplated that the regulated water supply would irrigate 26,000 acres of new lands. Estimated costs of construction totaled $17,310,000 based upon 1940 prices. This sum included estimates of $15,500,000 for the dam and reservoir and $1,810,000 for irrigation facilities.

NEEDS OF THE AREA

3. The magnitude of recent floods in the Kansas River Basin has clearly established the need for greater flood-control capacities on the Solomon River and other tributaries in this basin. To prevent the recurrence of the extensive damages of the 1951 flood a comprehensive system of reservoirs is necessary with about 1,500,000 acre-feet of flood storage capacity on the Solomon River, Due to its strategic location Glen Elder Reservoir should provide a substantial portion of this capacity. Total damages resulting from the 1951 flood along the Solomon River amounted to $16,477,000. This sum excludes downstream damages attributable to the flood waters of the Solomon.

4. Despite the occurrence of devasting floods, the area experiences droughts of varying frequencies and intensities. While precipitation has been more plentiful in the last decade than during the dry 1930's, crop production and stability of agriculture is impaired because of the inadequate moisture and abnormal distribution of rainfall. A maximum of 26,000 acres of irrigable land would benefit by a dependable supply of irrigation water.

5. Characteristic of the Great Plains, reservoir impoundments in the area are desirable to provide better fish and wildlife habitat, resting places for migratory waterfowl, and recreational outlets.

PLAN OF DEVELOPMENT

6. The Glen Elder unit will consist of a multiple-purpose dam and reservoir below the junction of the north and south forks of the Solomon River and a system of irrigation canals and distribution and drainage works to serve the project lands. The dam will be an earthfill structure across the river and adjacent bottom lands with abutments in the benches rising from the river vally. Total reservoir capacity will be about 743,000 acre-feet including sediment storage of 51,000 acre-feet, irrigation pool of 192,000 acre-feet, and about 500,000 acre-feet of active flood storage. Flood-control space is subject to modification and confirmation by the Corps of Engineers. Sufficient surcharge and spilleay capacity will be provided for routing the spillway design flood. Irrigation releases will be made into a canal from the reservoir. About 27,000 acres of land, much of which is now in production, will be acquired for reservoir right of way. Total preliminary costs of the development are estimated to be $40,000,000 at current prices. This sum includes $32,000,000 for the dam and reservoir and $8,000,000 for irrigation facilities. Power development is not proposed because of intermittent and low flows and lack of necessary head at the dam. Total annual operation, maintenance, and replacement costs for the unit will be about $75,000.

EFFECTS OF DEVELOPMENT

7. Glen Elder Reservoir is a key flood-control feature of the Kansas River Basin. Due to its location at the junction of the north and south forks of the Solomon River it will impound floodwaters arising over a drainage basin of about 2,670 square miles below the sites of Webster and Kirwin Reservoirs on the north and south forks of the Solomon River. The entire drainage area of the Solomon River Basin above Glen Elder Reservoir of 5,370 square miles will be afforded ample flood protection by the combination of these three reservoirs.

8. Annual flood-control benefits of the development have not yet been evaluated by the Corps of Engineers. However, a flood-control benefit study conducted by the corps in 1946, when flood storage of only 183,000 acre-feet was contemplated in the Glen Elder Reservoir, placed annual benefits at $392,000. Flood-control benefits in the entire Kansas River Basin are undergoing reanalysis since the 1951 flood. The combined effects of the 1951 flood damages and the provision of greater flood-control storage in Glen Elder Reservoir may increase annual flood benefits to about $800,000.

9. The project lands of 26,000 acres in the Glen Elder unit have been classified by reconnaissance. Before development of irrigation a detailed land classification will be made as a requisite to determination of benefits, payment capacity of water users, and layout of the irrigation distribution system. Small areas of land may be nonirrigable due to salinity, drainability, or other conditions.

10. Assuming that the total irrigable acreage will be reduced from 26,000 to about 24,000 and that irrigation benefits will average about $17 an acre, a figure typical of other units in the area, annual irrigation benefits may approximate $400,000. Smaller, but nevertheless important, benefits will accrue from fish and wildlife and recreational aspects of the development.

11. The total net annual benefits will support a capital investment of slightly over $40,000,000 considering a period of useful life of 100 years and an interest rate of 2½ percent. Since this sum equals the preliminary estimate of cost, the benefit-cost ratio of the Glen Elder unit will be unity.

STATUS OF INVESTIGATIONS

12. Field surveys and investigations are proceeding at this time. Drilling explorations to determine foundation requirements of the dam are under way. Specifications have been drawn for award of contract for a topographic survey of the reservoir area. All essential field work and the preparation of a definite plan report will be completed during the current fiscal year so that design and construction of the Glen Elder Dam may be initiated at the beginning of next fiscal year. Since construction of irrigation facilities will not be concurrent with the dam, additional time will be available for field investigations associated with irrigation. In view of investigations yet to be completed, the data in this report are tentative and subject to modification. It may be necessary to adjust location and capacity of features, costs, and benefits in the course of investigations. However, a balance between benefits and costs will be maintained in developing the Glen Elder unit.

AVERY A. BATSON.

Mr. LINEWEAVER. The statement I have given on the 1951 floods on the Kansas River show you the extent of the disaster and the contribution that has been made by the existing reservoirs of the Bureau and the corps and the proposed reservoirs like the Kirwin, which is under construction or will be under construction this spring, as well as the Webster, Wilson, and Glen Elder Dams, especially what they will provide in the way of flood control.

CONSTRUCTION SCHEDULE

Mr. NORRELL. If you get the money, will you start construction right away?

Mr. LINEWEAVER. The plan on Glen Elder is to issue the specifications on September 15, 1952, and award the contract for the dam and outlet works, within 30 days after that and get started before winter.

Mr. NORRELL. This has to do with the area that we knew as the Midwest area concerning a portion of Kansas, does it not?

Mr. LINEWEAVER. Yes, sir; the Kansas-Missouri area.

Mr. JENSEN. You are expecting to let your contracts when, this year?

Mr. LINEWEAVER. The schedule is to issue the specifications September 15, 1952, next September.

Mr. JENSEN. This coming September.

Mr. LINEWEAVER. Yes, sir; about 8 or 9 months from now.

Mr. JENSEN. That is an unusually rush job in getting all the investigations and plans and specifications ready.

ADVANCE WORK COMPLETED

Mr. LINEWEAVER. I might say this, Mr. Jensen, that considerable advance work has been done especially over the last 4 or 5 years since this project was originally recommended by the President for construction in 1947, and considerable work has been done since that time, especially since the floods of last July. Since then the work has been expedited and the corps and the Bureau have cooperated in the exchange of information, which has expedited the plans for accumulation of data upon which the specifications can be based.

AUTHORIZATION FOR INVESTIGATION

Mr. JENSEN. In that case, then, you must have used money from your general investigation funds to carry on the investigations. I do not remember of ever having appropriated specifically for that.

Mr. LINEWEAVER. We had it in the phase C program of the Missouri River Basin program; yes, sir.

Mr. JENSEN. For how much?

Mr. LINEWEAVER. Since 1947, since it was recommended in 1947—it has been in Senate Document 191, also.

As our statement shows, Mr. Jensen—we might as well get it out for the information of the committee—we had originally recommended the Webster Dam for construction first and Glen Elder was substituted for it because it would do more effective flood-control work.

Mr. JENSEN. Well, then, it was not designated in your request as Glen Elder Dam?

Mr. LINEWEAVER. Oh, yes.

Mr. JENSEN. Was it?

Mr. LINEWEAVER. Yes; it is designated in our estimates now.

Mr. JENSEN. Now, but was it up to this time?

Mr. LINEWEAVER. Oh, yes; we had Webster, Glen Elder, and Wilson, three dams in the Solomon River Basin, as well as Kirwin.

Mr. JENSEN. All right, that is all.

JURISDICTION OF BUREAU

Mr. NORRELL. If I understand you correctly, you acquired jurisdiction of the construction of the project not necessarily because of the flood-control angle, but because of the irrigation angle. Flood control might be vital, but the construction comes under your agency because of the irrigation angle. Am I correct on that?

Mr. LINEWEAVER. That is generally correct, Mr. Chairman. There are multiple purposes which do involve irrigation and in a great many cases, power and flood control, all three being under Senate Document 191.

Mr. NORRELL. And if there was a project exclusively for flood control, it would be constructed by the Corps of Engineers, would it not?

Mr. LINEWEAVER. Presumably it would, yes, sir.

SOLOMON DIVISION, KIRWIN UNIT, KANSAS

Mr. NORRELL. We will go now to the Solomon Division, Kirwin Unit, in Kansas.

You had an allotment in fiscal year 1952 of $2,625,000, and now your budget estimate for fiscal year 1953 is $6,000,000.

Please insert pages 474 through 477 in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$18, 187, 000
Total obligations to June 30, 1951		371, 172
Allotment, fiscal year 1952	$2, 625, 000	
Prior year balance available	311	
Total obligations, fiscal year 1952		2, 625, 311
Allotment, fiscal year 1953	$6, 000, 000	
Total obligations, fiscal year 1953		6, 000, 000
Balance to complete		9, 190, 517

JUSTIFICATION OF ESTIMATE

Location.—The unit is located in north central Kansas along the North Fork of the Solomon River in Phillips, Smith, and Osborne Counties. The project lands extend from Kirwin Dam, adjacent to the town of Kirwin, Kans., southeastward to Portis, Kans.

Description.—The major functions to be performed by the unit are flood control, irrigation, and silt retention. Facilities will include Kirwin Dam and Reservoir, Kirwin main canal, North canal, South canal, and Kirwin drainage system. A total of 11,500 acres on both sides of the river are to be irrigated.

Repayment.—The Kirwin irrigation district has been formed and the board of directors is at the present time considering a draft of a water service and repayment contract. Completion of negotiations and final approval of the contract is programed for May 1952. Due to the flood-control value of the unit, construction of Kirwin Dam is programed for initiation prior to the consummation of the repayment contract.

Status.—As of June 30, 1952, construction of Kirwin Dam will be under way. Specifications will be issued in the near future, and award of contract made during the spring of 1952. Field data, plans, specifications, and contracts for relocation of the Missouri-Pacific Railroad and necessary Government housing will be completed.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for continued acquisition of reservoir lands and the continuation of construction of Kirwin Dam and Reservoir.

Justification.—The Kirwin Dam was initiated by a supplemental appropriation by Congress for 1952 because of the urgent need for flood control following the recent disaster in Kansas. The Solomon River was one of the heavy contributions of flood waters that raced on to the Kansas River and then into the Missouri. Kirwin Dam and Reservoir would have controlled all flood waters originating above the dam site.

The Kirwin irrigation district has been formed and a repayment will be forthcoming in the near future. The sponsors of the Kirwin Unit have been the leaders in revamping the antiquated irrigation laws in Kansas. They have clearly indicated through their persistent efforts to speed up the organization of an irrigation district and repayment contract that they want an early start of construction of Kirwin Dam and the canal system. Any delay in the proposed program will postpone the application of irrigation water to 11,500 semi-arid acres at a time when a higher food-producing potential is needed to bolster our national defense.

Program item (1)	Estimated total (2)	Total to June 30, 1951 (3)	Program current year 1952 (4)	Program budget year 1953 (5)	Balance to complete (6)
Construction program:					
Kirwin Dam and Reservoir	$13,975,000	$371,172	$903,000	$6,950,000	$5,750,828
Kirwin main canal	1,297,000				1,297,000
Kirwin north canal	747,000				747,000
Kirwin south canal	827,000				827,000
Kirwin laterals, main canal	191,000				191,000
Kirwin laterals, north canal	407,000				407,000
Kirwin laterals, south canal	212,000				212,000
Kirwin drainage system	381,000				381,000
Farm unit development	44,000				44,000
General property	74,000				74,000
Kirwin recreation development	32,000				32,000
Total cost	18,187,000	371,172	903,000	6,950,000	9,962,828
Construction facilities			92,000	14,000	−106,000
Stores				14,000	−14,000
Project investigations			5,000	22,000	−27,000
Total expenditures	18,187,000	371,172	1,000,000	7,000,000	9,815,828
Unliquidated obligations			1,625,311	−1,000,000	−625,311
Total obligations	18,187,000	371,172	2,625,311	6,000,000	9,190,517
Method of financing:					
Allotment, fiscal year 1952			2,625,000		
Prior-year balance available			311		
Allotments required				6,000,000	9,190,517

Mr. NORRELL. Will you make a statement on that?

Mr. LINEWEAVER. Yes, sir; I have a statement on that.

GENERAL STATEMENT

The Kirwin unit is located in north-central Kansas along the North Fork of the Solomon River. The Kirwin Dam and reservoir will provide flood control in the area and, with canal and drainage facilities, will provide irrigation and silt retention.

Funds were provided by the second supplemental appropriation bill, 1952, to start construction on the Kirwin Dam, the principal feature of the Kirwin unit. Procurement of field data and designs of the dam have been expedited to allow issuance of the specifications soon and the award of a construction contract for the foundation construction will be made this spring. Contract for the relocation of the Missouri-Pacific Railroad and specifications and contracts for necessary Government housing will follow shortly afterwards within fiscal year 1952.

FLOOD-CONTROL FEATURES

The recent devastating floods have clearly demonstrated the urgent need for this unit as an additional flood-control works in the Kansas River Basin. It is anticipated that the storage of water can start by June 1954. The program for fiscal year 1953 provides for the continued construction of the dam and reservoir and acquisition of reservoir lands; however, further field data on the irrigation facilities will not be obtained until later.

REPORT ON DEVELOPMENT

I also have an up-to-date report from the regional director at Denver, Colo., dated January 18, 1952, which I would like to place in the record.

Mr. NORRELL. All right.

(The report referred to is as follows:)

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION REGIONAL OFFICE, REGION 7,
Denver, Colo., January 18, 1952.

To: Commissioner.
From: Director.
Subject: Kirwin unit, Solomon division, Missouri River Basin project.

1. This is a brief report on the status of development of the Kirwin unit of the Missouri River Basin project. The unit is located on the north fork of the Solomon River in central Kansas and was named for the town of Kirwin, situated just below the left abutment of the proposed dam. The 11,500 acres of irrigable land extend 25 miles eastward on both sides of the river from Kirwin in Phillips County to Portis in Osborne County.

ORIGINAL PLAN

2. The approved comprehensive plan for the Missouri River Basin as set forth in Senate Document No. 191, Seventy-eighth Congress, second session, April 1944, included the Kirwin unit as one of six developments in the Smoky Hill River Basin needed for irrigation and flood control. Experience has demonstrated an urgent and definite need for flood control in downstream reaches of the Solomon, Saline, and Smoky Hill Rivers, all tributaries of the Kansas River. In the original plan a capacity of 174,400 acre-feet for irrigation, flood control, and silt control was contemplated for Kirwin Reservoir. Dry-farmed lands comprising 11,000 acres were to be irrigated. Construction costs of the unit were estimated at $10,000,000 based upon 1940 prices. Costs of the dam and reservoir were $9,000,000 and irrigation facilities $1,000,000.

NEEDS OF THE AREA

3. The needs of the Kirwin area parallel those of other parts of the Solomon River Basin in central Kansas. The disastrous Kansas River flood of 1951 resulted in more than $16,000,000 damages in the Solomon River Basin and much greater losses in areas farther downstream. To prevent recurrence of such devastation a total of about 1,500,000 acre-feet of flood storage capacity is desirable in a comprehensive system of reservoirs on the Solomon River. Kirwin Reservoir, together with Glen Elder and Webster Reservoirs, will provide almost two-thirds of this total flood-control capacity.

4. The irrigable area below Kirwin Dam consists of excellent quality lands which have produced abundant dry-land crops when moisture was adequate. However, agriculture lacks stability even in years of normal precipitation because of intermittent droughts and poor distribution of rainfall in the growing season. The severe drought and depression of the 1930's brought economic ruin to the area, as they did to dry-land agriculture over the entire Great Plains.

5. Existing reservoirs in Kansas and Nebraska have demonstrated much use of such features for fishing and recreational activities. As the Kansas plains are almost devoid of bodies of water, reservoirs such as Kirwin will prove to be important public assets. Fish and wildlife habitat and recreational opportunities will be improved with the development.

PLAN OF DEVELOPMENT

6. Kirwin unit consists of a multiple-purpose dam and reservoir of 315,000 acre-feet capacity, and a system of gravity irrigation canals and laterals to serve 11,500 acres of irrigable land. The dam will be an earthfill structure, 119 feet high from the river to the crest and a little over 11,000 feet long. The reservoir capacity includes 220,000 acre-feet for flood storage and 95,000 acre-feet for conservation storage, which includes 15,000 acre-feet for sediment deposition. Flood-control storage capacity has been confirmed by the Corps of Engineers.

7. In addition to the total storage space, surcharge capacity of 198,000 acre-feet and an ungated spillway of 96,000 cubic second-feet capacity will be provided

for routing the spillway design flood. Irrigation releases will be made into a canal from the reservoir. The reservoir area comprises a total of 14,660 acres of land. Of this sum, 10,640 acres below the top of the flood pool will be subject to inundation. However, some of the land in the flood pool and the total of 4,020 acres in the surcharge area will continue in production or be devoted to adaptable use. Irrigation facilities will consist of a main canal, north canal, south canal, laterals, and a drainage system.

8. Total estimated construction costs are $22,560,000, based upon January 1952 prices. This sum includes $17,660,000 for the dam and reservoir and $4,900,000 for irrigation features. Annual operation, maintenance, and replacement costs of the unit are estimated at $38,500.

EFFECTS OF DEVELOPMENT

9. Kirwin Reservoir will serve as an essential and effective flood control feature on the North Fork of the Solomon River and as a component of a system of flood-control works in the Kansas River Basin. Preliminary evaluation of annual flood-control benefits by the Corps of Engineers is $375,000.

10. The project lands are of good quality. Except for about 700 acres in the total of 11,500 acres of irrigable land, soils have a high inherent fertility and are well adapted to intensive irrigation. An additional 600 acres of the total have rather heavy subsoils and will require proper farming methods for maximum production. Topography of the lands is good, although 50 percent of the acreage will require some leveling or special irrigation practices. Soils are free from harmful salts and generally have good permeability rates.

11. It is anticipated that farm operations under irrigation will be devoted to an economy characterized by the production of feed grains, forage, and livestock. Annual irrigation benefits for the unit are estimated at $201,800 based upon an agricultural price index of 215 and parity of 100 percent. This sum includes $109,800 direct benefits in the form of increased net farm income and $92,000 indirect benefits associated with the marketing and processing of the increased supply of crops and commodities and other advantages of the development. Improvement of fishery and wildlife resources are evaluated by the Fish and Wildlife Service at $4,000 annually. Annual recreation benefits are estimated at $2,800 by the National Park Service.

12. Estimated construction costs of the unit plus allowance for interest during construction as an economic cost and salvage value of the dam and reservoir after the period of analysis represent a net public investment of $22,610,000. Converted to an annual basis for a 100-year period at 2½ percent interest the investment is $617,400. Addition of operation, maintenance, and replacement costs brings total annual costs to $655,900. Comparing total annual benefits of $583,600 with these costs, the benefit-cost ratio is 0.9 to 1. Considering this relationship, cognizance must be given to intangible benefits. No value has been placed on loss of life due to floods. Other benefits of an indirect or public nature arising from flood control and irrigation are not susceptible of measurement. Moreover, the flood control benefits as estimated by the Corps of Engineers are preliminary and may be revised upward when analysis of damages of the flood of 1951 has been completed. Conservative crop yields have been used in deriving irrigation benefits.

STATUS OF DEVELOPMENT

13. Preconstruction investigations and preliminary designs and estimates for Kirwin Dam and Reservoir are completed. Invitations for bids for construction of the foundation of the dam have been issued and it is anticipated that a contract on this work will be let in February 1952. Construction of the dam and reservoir can be accomplished in a 3-year period. The definite plan report for the unit will be reproduced by the end of this month. As the irrigation facilities will not be constructed concurrently with the dam and reservoir, additional time is available for design and lay-out of canals, laterals, and surface drains. A detailed classification of project lands has been made.

14. The Kirwin irrigation district has been formed under provisions of Kansas law and the organization has been approved by the Kansas State engineer. District officers have been elected and preliminary negotiations for repayment contract have been initiated.

AVERY A. BATSON.

INCREASE IN ESTIMATED COST

Mr. LINEWEAVER. I also call the attention of the committee to the proposed revision of the total estimated cost of the Kirwin unit, which has been brought about by adjustment of the capacity, an increase from $18,187,000 to $22,560,000.

The Kirwin unit is located in north-central Kansas on the north fork of the Solomon River, which was a major contributor during the recent floods in the Kansas River Basin.

The 1951 floods in this area exceeded those of recent record and necessitated a revision in the required reservoir storage capacity for control of future floods. Studies of the Kirwin Dam prior to 1951 had arrived at a reservoir capacity of 200,000 acre-feet as sufficient. Cooperative studies by the Bureau of Reclamation and the Corps of Engineers since the 1951 floods and based on new data made available at that time have indicated that the reservoir capacity for this structure should be substantially increased.

Studies to determine the optimum capacity are now proceeding, and preliminary results indicate a capacity of approximately 315,000 acre-feet as necessary.

Based on the original reservoir capacity figures, the total estimated cost of the Kirwin unit had been estimated at $18,187,000. The major revisions to the structures originally contemplated, which will be necessary if a larger capacity reservoir is decided on, will necessitate a substantial upward revision in the estimate of cost. A preliminary reestimate based on the enlarged reservoir capacity indicates a new cost estimate for the Kirwin unit of $22,560,000.

There is a similarity between the Kirwin and the Glen Elder projects, but the Kirwin was appropriated for in the second supplemental appropriation bill which was passed by the Congress on the last day of the last session.

PURPOSE OF UNIT

Mr. NORRELL. Its major purpose is flood control?

Mr. LINEWEAVER. Flood control and irrigation.

Mr. NORRELL. Have you deferred the irrigation features until after the emergency?

Mr. LINEWEAVER. Yes, sir; we have deferred the irrigation features on both the Glen Elder and Kirwin until after the emergency, although major storage is provided for or will be, in both dams for conservation purposes, especially irrigation.

THREE FORKS DIVISION, CROW CREEK PUMP UNIT, MONTANA

Mr. NORRELL. The next item will be the Three Forks division, Crow Creek pump unit, in Montana.

I believe that in the fiscal year 1952 you had an allotment of $100,000, and I believe that your proposed allotment for fiscal year 1953 is $500,000.

Please insert in the record at this point pages 479 through 482 of the justification.

(The pages referred to are as follow:)

Summarized financial data

Estimated total obligations		$1,541,523
Total obligations to June 30, 1951		121,377
Allotment, fiscal year 1952	$100,000	
Prior-year balance available	40,146	
Total obligations, fiscal year 1952		140,146
Allotment, fiscal year 1953	$500,000	
Total obligations, fiscal year 1953		500,000
Balance to complete		780,000

JUSTIFICATION OF ESTIMATE

Location.—The Crow Creek pump unit is located south of Crow Creek near its confluence with the Missouri River, and the town of Toston, in southwestern Montana.

Description.—Water will be pumped from the Missouri River with a lift of 175 feet, to irrigate 5,020 acres of new land. The pumping plant on the Missouri River will discharge into a tunnel to be constructed through a ridge separating the river from the Crow Creek area. The tunnel will discharge into the Toston and Lombard canals.

Status.—Preconstruction surveys and studies began in fiscal year 1949. As of the present time, formation of an irrigation district has not been accomplished and plans for the execution of water-use contracts are being studied in order to provide lieu lands for the Canyon Ferry unit. Volume I of the definite plan report is scheduled for completion and approval in February 1952. By the end of the current fiscal year, equipment for the pumping plant will have been ordered for installation by contract in fiscal year 1953. Design data will have been completed for the pumping plant, tunnel, canals, laterals, and drains, and designs will be under way. This unit was called the Crow Creek unit in prior budget submittals.

Work proposed, fiscal year 1953.—Contracts will be awarded for construction of the pumping plant, tunnel, canals, laterals and drains, and construction will get started in the last half of the year. Payments will be made on pumping plant equipment and on construction contracts. Studies of development of the area will continue.

Justification.—The people of Broadwater County have insisted that facilities be provided for irrigation in Broadwater County to provide irrigated land equal in acreage to that which would be inundated by Canyon Ferry Reservoir above elevation 3,766. Recognizing the position of Broadwater County, restrictions were carried in the fiscal year appropriations of 1949 and 1950 requiring the development of lieu lands before Canyon Ferry can be operated in full capacity.

The Crow Creek pump unit is the most desirable unit which could provide irrigated land in Broadwater County equal in acreage to the irrigated land which would be inundated. The program as outlined for fiscal year 1953 must go ahead if water is to be made available in May of calendar year 1954, the first irrigation season following the generation of power at Canyon Ferry power plant in October of 1953.

Construction activities have been scheduled to take the earliest advantage of power availability from the Canyon Ferry unit. Initiated of construction of the Crow Creek pump unit is necessary to provide an irrigable area as soon as practicable to replace the irrigable lands in Broadwater County being inundated by the Canyon Ferry Reservoir. Construction contracts must be awarded during fiscal year 1953 to insure timely delivery of water. Other scheduled activities on the unit, consisting of preconstruction work, are essential for a coordinated construction program and concurrent completion.

Program item (1)	Estimated total (2)	Total to June 30, 1951 (3)	Program current year 1952 (4)	Program budget year 1953 (5)	Balance to complete (6)
Construction program:					
Crow Creek pumping plant	$666,000	$247	$101,500	$287,000	$277,253
Toston tunnel	322,000	9,325	11,000	97,000	204,675
Toston canal	126,500	28	7,000	59,000	60,472
Lombard canal	106,500		4,000	50,000	52,500
Lateral system	115,000		4,000	43,300	67,700
Drainage system	136,000		800	41,000	94,200
Farm unit development	13,000		1,200	1,700	10,100
Crow Creek pumping plant switchyard and distribution line	40,000		2,000	12,000	26,000
Total cost	1,525,000	9,600	131,500	591,000	792,900
Construction facilities				7,000	−7,000
Stores		3,044	1,895		−4,939
Project investigations		86,176	12,500	−98,000	−676
Transfers, credits, and other expenditures	16,523	22,557	−5,749		−285
Total expenditures	1,541,523	121,377	140,146	500,000	780,000
Total obligations	1,541,523	121,377	140,146	500,000	780,000
Method of financing:					
Allotment, fiscal year 1952			100,000		
Prior-year balance available			40,146		
Allotments required				500,000	780,000

Mr. NORRELL. You may discuss this item, Mr. Lineweaver.

Mr. LINEWEAVER. Mr. Chairman, I have a statement.

GENERAL STATEMENT

Funds for the construction of the Crow Creek pump unit in fiscal year 1953 are essential to meet the requirements of Congress for the operation of the Canyon Ferry Dam and power plant, which are now being constructed on the main Missouri River 17 miles east of Helena.

Canyon Ferry Reservoir floods out about 5,000 acres of irrigation land in Broadwater County, Mont. In approving and appropriating funds for the construction of Canyon Ferry, the Congress specified by a proviso in the fiscal year 1949 and fiscal year 1950 acts that the reservoir could not be operated above a normal pool elevation of 3,766 feet unless and until new land in Broadwater County is provided with facilities for irrigation equivalent to irrigated land inundated by the reservoir.

This proviso was omitted from the fiscal year 1951 and subsequent acts on representation by the Bureau that the Crow Creek pump unit would be constructed, as shown on pages 680 and 681 of the fiscal year 1952 House hearings. The Canyon Ferry Dam is now being completed, and power is expected to be available in the fall of 1953.

Canyon Ferry is designed for a normal pool elevation of 3,800 feet. It will be practically impossible to operate the reservoir at 3,766 feet without the strong probability of rises above that point because of flood flows which may require the use of the spillway crest at elevation 3,766 feet.

Furthermore, all of the power that can be developed is urgently needed for national defense. The gross annual power revenue is expected to be $1,211,000 at full operation, whereas if operation is restricted to 3,766 feet, this amount would be reduced to $804,100—an annual loss of over $400,000.

The Crow Creek pump unit of 5,020 acres, also in Broadwater County, is the best means of satisfying this condition. It will be a

pump lift of about 175 feet and cost about $1,525,000. By starting construction in fiscal year 1953, irrigation can be made available for the calendar year 1954 season.

HARDSHIPS FROM LOSS OF LAND

The loss of land through the construction of Canyon Ferry Reservoir has caused some hardship to local residents and loss of valuable trade in the nearby communities of Townsend and Toston. These interests are exceedingly anxious that lieu lands be developed as soon as possible.

However, it is doubtful if an irrigation district for the new Crow Creek area can be formed before development of some of the land is undertaken. While a majority of the landholders is in favor of an irrigation district, they do not control a majority of the land; and a district cannot be formed under these conditions.

LACK OF INTEREST IN IRRIGATION

There are only 10 owners in the area, and several of the largest landholders are not interested in irrigation because of their age, or other interests. Others have adopted a "wait and see" attitude and several use the land for grazing operations and would wish to trade for other grazing land. However, there is apparently no doubt that the facilities will be utilized fully after construction, as is borne out by the experience of the Montana State Water Conservation Board with two similar projects constructed in the area in the past 12 years.

As a result of this landownership situation, it may be desirable and necessary to proceed on the basis of individual water service contracts on a 5-year term until a district is formed. This procedure would satisfy the requirements of the Canyon Ferry proviso and would be justified fully by the operating revenue involved from Canyon Ferry.

BENEFITS TO BE REALIZED

It has been established definitely that the benefits from the Crow Creek pump unit will greatly exceed the cost. Tentative computations indicate a benefit-cost ratio of 3.2 to 1. If considered as a prerequisite to the full operation of Canyon Ferry, then the benefits are far greater than for the irrigation unit alone.

The appropriation request of $500,000 in the current bill is based on the assumption that the Congress reaffirms its position in the 1949 and 1950 appropriation acts, and that construction should proceed on the basis of the sale of water through water service contracts until such time as a district capable of contracting for repayment of irrigation charges can be formed. The only satisfactory alternative to this procedure would be to operate the Canyon Ferry unit at full capacity until an irrigation district would be formed and construction then completed on the Crow Creek pump unit.

WATER LEVEL PROVISO IN APPROPRIATION ACTS

I call the attention of the committee to this feautre with regard to Crow Creek. In the appropriation bills for 1948 and 1949, as I recall, there was a proviso in there which stated that Canyon Ferry Dam should not be operated at higher than a certain level unless adequate

provision was made for the construction of irrigation districts in Broadwater County, Mont., which would compensate for the area flooded out by the Canyon Ferry Reservoir.

On the assurance by the Bureau to the committee that we would proceed with the irrigation in Broadwater County and would not operate the Canyon Ferry Dam at a capacity higher than the specified elevation unless we did go ahead with the irrigation, the proviso or prohibition was dropped from the bill.

We feel that we must go ahead with this Crow Creek development in such a manner that will keep faith with this committee and Montana people who were concerned with the flooding out of certain areas in Broadwater County which would affect the tax base without the formation of an irrigation district.

For that reason we propose to go ahead with the Crow Creek development on a water service contract basis under the authority of the Missouri Basin Project authorization in Senate Document 191 with a regular irrigation district formulated and a contract negotiated under the reclamation laws.

Mr. NORRELL. Then, this was started to replace lands that had been flooded?

ADVANTAGES OF OPERATING AT HIGHER LEVEL

Mr. LINEWEAVER. Yes, sir, lands that will be flooded. I would like to have Mr. McPhail state to the committee briefly what the advantage of operating Canyon Ferry at the higher water level will be, in the way of providing additional revenue from Canyon Ferry which will far more than offset the cost of the Crow Creek unit.

Mr. NORRELL. All right.

Mr. MCPHAIL. Mr. Chairman, by operating the dam at its highest level, according to our estimates, we will have the result of an additional revenue of $400,000 a year.

Mr. NORRELL. Well, can you operate Canyon Ferry Reservoir at full capacity when this is done?

Mr. MCPHAIL. Yes, sir.

Mr. LINEWEAVER. Off the record.

(Discussion off the record.)

Mr. LINEWEAVER. On the record. With respect to Crow Creek, we feel that while the committee dropped that prohibition from the bill, we still have an obligation to carry out the directive of the committee as expressed at that time.

Mr. JENSEN. Off the record.

(Discussion off the record.)

EFFECTS OF FLOOD-CONTROL PROGRAM

Mr. JENSEN. On the record. Now, we are having built a lot of these dams along the tributaries in the Missouri Valley as well as on the main stream of the river. Just how soon would you say that we shall be feeling the effects of this flood control program in the lower regions of the Missouri River—when will we feel the effect of some of these dams that are being constructed?

Mr. LINEWEAVER. Mr. Jensen, every dam that goes into operation makes a substantial contribution to flood control.

For instance, the Cedar Bluff Dam that was completed in Kansas just before the flood this year was of material effect in holding back the floods in the first Kansas flood. You know, they had two floods there and, as I say, the Cedar Bluff Dam was of material value in holding the first flood back and also the second or major flood.

Mr. JENSEN. We have a spring flood and then we have a June flood on the lower reaches of the Missouri River. All of that water from that great area from Council Bluffs and Omaha must pass downstream and under the bridges between Omaha and Council Bluffs—and what does it do? Every spring in my district, which extends to within 25 miles south of Sioux City, we have these floods, and generally about 100,000 acres of land are flooded annually.

Now, we are getting all of these dams built upstream. A number of them are going to be completed within the next four years, but we have none of them at the present time that is complete except Fort Peck.

Many people are saying, "How soon can we expect some relief from these floods because of the building of all of these dams upstream?"

Can anybody here tell me how soon it will be?

Mr. LINEWEAVER. As quickly as each one of the main stream dams goes in and those on the tributaries go in, then you begin to feel the effects. The tributary dams have already shown their value as I pointed out a while ago.

Mr. JENSEN. They have not shown any effect downstream. Of course, I know it is such a big area, and I know that it takes an awful lot of dams to hold the water that falls in that area, which covers about one-fifth of the whole United States.

However, I will be happy whenever the day comes that there will be no more floods on the main stream of the Missouri River, and I know that my people are eagerly looking forward to that time.

TRANSMISSION DIVISION

Mr. NORRELL. The next item is the transmission division. The allotment for the fiscal year 1952 is $13,930,679. The budget estimate for the fiscal year 1953 is $21,563,000, and you desire a transfer to this project of $5,742,842.

Please insert at this point in the record pages 484 through 494 of the justifications.

(The pages referred to are as follows:)

Summarized financial data

Estimated total obligations		$307, 571, 351
Total obligations to June 30, 1951		30, 426, 330
Allotment, fiscal year 1952	$13, 930, 679	
Prior year balance available	2, 547, 945	
Balance available in subsequent years	−440, 158	
Total obligations, fiscal year 1952		16, 038, 466
Allotment, fiscal year 1953	$21, 563, 000	
Prior year balance available	440, 158	
Transfer to project	5, 742, 842	
Total obligations, fiscal year 1953		27, 746, 000
Balance to complete		233, 360, 555

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JUSTIFICATION OF ESTIMATE

Location

The transmission division of the Missouri River Basin project includes the necessary facilities required to market power generated by Missouri River Basin power plants. This power market now includes North Dakota, South Dakota, Nebraska, and portions of Montana, Wyoming, Colorado, and Iowa.

Description

The Bureau of Reclamation will construct power transmission facilities to interconnect and coordinate the operation of all Government power plants in the Missouri River Basin to provide both firm and secondary power for irrigation pumping, construction power, sales to municipalities, cooperatives, private utilities, and other wholesale customers. Power plants have been constructed on the Riverton, Shoshone, North Platte, Kendrick, and Missouri River Basin projects. The Angostura power plant in South Dakota and Boysen power plant in Wyoming are nearing completion and will be placed in operation in fiscal year 1952. The Canyon Ferry power plant in Montana is the only other power plant in the Missouri River Basin now under construction by the Bureau of Reclamation and will be completed in fiscal year 1954. These and other plants to be constructed will be interconnected by the transmission facilities of the Missouri River Basin project and will in turn be integrated with the Fort Peck, Garrison, Fort Randall, and Gavins Point power plants being constructed by the United States Corps of Engineers.

Repayment

The revenue from the sale of electrical energy will include the return to the Treasury of the entire cost of the transmission division in accordance with the prescribed provisions of reclamation law as authorized by Congress.

Status

Construction began in November 1947. As of June 30, 1951, construction was complete on the following transmission lines and substations, except in some instances where minor items of clean-up, testing, extended work, or final contract payments remain.

Nebraska.—Gering-Sidney section of the Gering-Sterling 115-kilovolt transmission line and Sidney substation, Sidney-Ogalla section of the Sidney-North Platte 115-kilovolt transmission line, Gering-Chadron 115-kilovolt transmission line and Alliance substation, and Fort Randall-O'Neill 115-kilovolt transmission line.

Wyoming.—Cheyenne-Pine Bluffs section of the Cheyenne-Sidney 115-kilovolt transmission line, Pine Bluff substations, Glendo-Lusk 34.5-kilovolt transmission line and Lusk substation, Boysen-Thermopolis section of the Alcova-Boysen-Lovell 115-kilovolt transmission line, and the Muddy Ridge substation.

Colorado.—Sidney-Sterling section of the Gering-Sterling 115-kilovolt transmission line.

North Dakota.—Williston-Garrison 115-kilovolt transmission line, Jamestown-Edgeley 115-kilovolt transmission line, Edgeley-Forman 69-kilovolt transmission line, Voltaire-Rugby 115-kilovolt transmission line, Rugby-Devils Lake 115-kilovolt transmission line, Devils Lake-Carrington 115-kilovolt transmission line, Devils Lake-Lakota 115-kilovolt transmission line, Leeds-Rolla 69-kilovolt transmission line, and the Watford City, Williston, and Beulah substations.

The major activity in the current year is as follows:

Nebraska.—The Julesburg and Ogallala substations will be completed, material procured for the Bridgeport substation, construction continued on the Alliance and Chadron substations.

Wyoming.—The Seminoe-Sinclair section of the Seminoe-Westvaco 115-kilovolt transmission line and Sinclair substation will be completed and surveys initiated on the Sinclair-Westvaco section of the Seminoe-Westvaco 115-kilovolt transmission line, transmission line completion of overhead ground wires on the Casper-Gering 115-kilovolt transmission line and continuing construction on the Gering substation. The Garland-Lovell 69-kilovolt transmission line will be completed, and the Boysen-Alcova and Thermopolis-Lovell sections of the Alcova-Boysen-Lovell 115-kilovolt transmission lines and Thermopolis substation will be completed. Construction is being initiated on the Lovell-Yellowtail 115-kilovolt transmission line.

North Dakota.—Completion of construction of the double-circuit Garrison-Bismarck 230-kilovolt and single-circuit Bismarck-Jamestown 230-kilovolt transmission lines, the Jamestown-Valley City, Garrison-Voltaire, Carrington-James-

town, and Garrison-Fort Peck tie 115-kilovolt transmission lines, and the Washburn, Bismarck (advanced portion), Jamestown, Edgeley, Forman, Valley City, Carrington, Devils Lake, Lakota, Leeds, Bisbee, Rolla, Rugby, Custer Trail, DeVaul, and Fort Clark substations. Continuation of construction of the Bismarck-Mogridge 230-kilovolt transmission line, the Bismarck-DeVaul 69-kilovolt transmission line, and Bismarck substation (normal program portion). Preliminary and detailed investigations, surveys, and design data assemblage, purchases of metering equipment, warehouse construction, and acquisition of general property items of equipment such as repair tools, transportation and communication equipment, etc., will be continued.

South Dakota.—Construction will continue on lines and substations of the East River 115-kilovolt grid to serve REA cooperatives, on the Fort Randall-Winner and Rapid City-Midland 115-kilovolt transmission lines, and on the Fort Randall-Oahe-Mobridge 230-kilovolt transmission line. Construction will be initiated on the Fort Randall-Sioux City 230-kilovolt transmission line and the Sioux City substation.

Montana.—The Canyon Ferry-East Helena two-circuit 115-kilovolt transmission lines will be completed, and equipment ordered for the Crow Creek substation.

Work proposed, fiscal year 1953

The fiscal year 1953 program provides for the following activity:

Nebraska.—The Bridgeport substation and the additions to the Alliance substation will be completed.

Wyoming.—Construction of the Sinclair-Westvaco section of the Seminoe-Westvaco 115-kilovolt transmission line will be started and equipment ordered for the Rock Springs and Westvaco substations. Construction will be started on the second phase of the Alcova switchyard. The Manville-Lance Creek section of the Glendo-Lusk 34.5 kilovolt transmission line and Lance Creek and Manville substation will be started and completed. The Lovell substation and Lovell-Yellowtail 115-kilovolt line will be completed.

Iowa.—Acquisition of right-of-way will be accomplished and supply and construction contracts awarded on the Sioux City-Omaha transmission line and supply contracts awards on the Omaha substation.

Montana.—Crow Creek substation, the Yellowtail-Billings 115-kilovolt transmission line and the Billings substation will be constructed.

Minnesota.—Survey, design and initial construction is scheduled for the Fargo-Sioux Falls section of the Jamestown-Fargo-Fergus Falls-Benson-Granite Falls-Mankato-Blue Earth-Jackson-Fort Randall 230-kilovolt line and substations at Fergus Falls, Benson, Granite Falls, Mankato, and Jackson.

South Dakota.—Construction will continue on the Fort Randall-Oahe-Mobridge and Fort Randall-Sioux City 230-kilovolt transmission lines and on the Sioux City substation. Construction on advanced stages of the East River 115-kilovolt grid system, the Fort Randall-Winner 115-kilovolt line, and the Rapid City-Midland 115-kilovolt line and related substation facilities will be completed and construction initiated on work for ultimate operation of these facilities. Initial construction is scheduled for the Oahe-Midland 115-kilovolt transmission line. Substation facilities at Rapid City and a tap line from Rapid City to the Rapid City Air Base are scheduled for construction during this fiscal year. Survey, design, and initial construction of the Sioux Falls-Fort Randall section of the Jamestown-Fargo-Fergus Falls-Benson-Granite Falls-Mankota-Blue Earth-Jackson-Fort Randall 230-kilovolt line is scheduled.

North Dakota.—Continuation of construction work on the Bismarck-Mobridge 230-kilovolt transmission. Survey, design, and initial construction of the Jamestown-Fargo section of the Jamestown-Fargo-Fergus Falls-Benson-Granite Falls-Mankato-Blue Earth-Jackson-Fort Randall 230-kilovolt transmission line and substation additions at Jamestown and Fargo is scheduled. Heart River irrigation pumping plant substations will be installed as required. System planning and project investigational work will continue. Survey and design work on Lakota-Grand Forks transmission line and Dickinson substation will be initiated.

Justification.

Electric power requirements in the areas to be served by the transmission lines under construction or presently proposed are growing at a rapid rate. There is at the present time a serious shortage of power in these areas but power plants under construction within the basin by the Bureau and the Corps of Engineers will be of material assistance in meeting this shortage. Federally constructed electric energy producing units at Angostura, Boysen, Canyon Ferry, Garrison,

and Fort Randall are progressing rapidly toward completion. Initial capacity of these units will total 466,200 kilowatts. Interim use of transmission facilities in North and South Dakota pending completion of producing units has been contracted for to alleviate growing scarcity of power in relation to existing supplies. Also, as the marketing agency for federally generated Missouri River Basin power, the Bureau of Reclamation is responsible for disposing of electric energy to wholesale purchasers in accordance with existing law. The completion of the transmission lines and substations has been scheduled at the most practical and economical rate possible to coincide with the initial availability of producing capacity. Therefore, funds are required in fiscal year 1953 to continue the orderly program of transmission construction between power plants and load centers, as well as between power plants themselves wherever it is feasible in order to maximize firm power output by interconnection.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
REGION 6					
Construction program:					
Missouri-Oahe (Fort Randall-Oahe):					
Advanced program:					
Sioux Falls-Brookings 115-kilovolt line and substation	$2,532,000	$71,827	$790,598	$1,474,686	$194,889
Brookings-Watertown 115-kilovolt line and substations	3,384,000	131,942	737,165	708,000	1,806,893
Watertown-Groton-Huron-Armour 115-kilovolt line and substations	6,638,000	201,031	3,089,896	1,562,683	1,784,390
Armour-Fort Randall-Gavins Point Sioux Falls 115-kilovolt line and substations	2,774,000	103,740	1,206,260	1,101,000	363,000
Rapid City-Midland 115 kilovolt line and substations	3,377,000	68,455	1,230,192	1,333,353	745,000
Fort Randall-Winner 115-kilovolt line and substations	1,376,000	71,389	1,016,436	244,175	44,000
Normal program:					
Fort Randall-Oahe-Mobridge-Garrison 230-kilovolt line and substations	19,392,000	724,066	2,153,286	9,259,000	7,255,648
Gavins Point-Sioux Falls 115-kilovolt line	926,000				926,000
Fort Randall-Sioux City 230-kilovolt line and substations	8,818,000	25,000	374,000	7,238,000	1,181,000
Oahe-Midland 115-kilovolt line and substations	775,000			406,000	369,000
Big Bend-Huron-Watertown 230-kilovolt line and switchyard	6,790,000				6,790,000
Transmission lines and substations, Fort Randall-Oahe (other)	6,809,000				6,809,000
Minnesota program (Fort Randall-Garrison):					
Jamestown-Fargo-Fergus Falls-Benson-Granite Falls-Mankato-Blue Earth-Jackson-Fort Randall 230-kilovolt lines and substations	54,000,000			2,913,600	51,086,400
Missouri-Souris (Garrison):					
Advanced program: Central North Dakota System	10,387,000	5,804,939	4,229,061	358,000	−5,000
Normal program:					
Bismarck-DeVaul 69-kilovolt line and substations	818,000	93,526	252,474	373,000	99,000
Dickinson substation	18,000			2,000	16,000
DeVaul-Shields 69-kilovolt line and substations	424,000		4,000		420,000
Williston-Garrison 115-kilovolt line and substations	2,553,000	2,452,990	59,610		40,400
Edgeley-Groton 115-kilovolt line and substations	1,431,000				1,431,000
Lakota-Grand Forks 115-kilovolt line and substations	1,652,000			37,000	1,615,000
Fargo-Grand Forks 115-kilovolt line	908,000				908,000
Fergus Falls-Lidgerwood-Summit 115-kilovolt line and substations	2,331,000				2,331,000

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
REGION 6—continued					
Construction program—Continued					
Missouri-Souris (Garrison)—Con.					
Normal program—Continued					
Forman-Lidgerwood 69-kilovolt line	$193,000		*		$193,000
Little Porcupine-Fort Peck tie (2 circuit) line	80,000				80,000
Transmission lines and substations (Garrison): Other	19,882,000				19,882,000
Upper Missouri (Canyon Ferry):					
Canyon Ferry-Great Falls 115-kilovolt line and substation	49,185	$49,185			
Crow Creek substation	76,000		$40,000	$36,000	
Livingston-Three Forks 115-kilovolt line substation and switching station	1,004,000				1,004,000
Three Forks-Lyon 115-kilovolt line, substation and switch station additions	1,244,000				1,244,000
Great Falls-Shelby 115-kilovolt line and substations	1,501,000				1,501,000
Great Falls-Lewiston 69-kilovolt line and substations	802,000				802,000
Canyon Ferry-East Helena substation equipment	80,000				80,000
Canyon Ferry-East Helena 115-kilovolt transmission line	280,000	5,997	274,003		
Great Falls-Portage 115-kilovolt line and substations	152,000				152,000
Big Horn (Boysen):					
Boysen-Riverton 34.5-kilovolt line and substations	346,981	76,882	40,099		230,000
Garland-Lovell 69-kilovolt line	171,000	27,976	143,024		
Alcova-Boysen-Lovell 115-kilovolt line and substations	3,410,723	1,568,924	1,701,774	46,760	93,265
Lovell-Yellowtail 115-kilovolt line	665,000	72,987	316,371	275,642	
Thermopolis-Lovell 34.5-kilovolt line and substations	873,000	36	2,400		870,564
Clarks Fork transmission lines and substations	4,331,000				4,331,000
Yellowstone (Yellowtail):					
Yellowtail construction substation	90,000				90,000
Miles City-Yellowtail 115-kilovolt lines and substations	2,245,000				2,245,000
Yellowtail-Ucross-Hot Springs 115-kilovolt lines and substations	6,009,000				6,009,000
Yellowtail-Billings 115-kilovolt line and substations	1,300,000			875,000	425,000
Livingston-Billings 115-kilovolt line and substations	1,710,000				1,710,000
Miles City-Broadus-Ashland 69-kilovolt lines and substations	2,553,000				2,553,000
Yellowtail-Billings 115-kilovolt Transmission line No. 2	550,000				550,000
REA and irrigation pumping-tap lines and substations	6,693,000	383,683	230,861	196,924	5,881,532
Metering equipment	74,000		73,000	1,000	
System dispatching equipment (microwave)	1,700,000				1,700,000
General property (all other)	2,726,000	36,564	795,529	458,977	1,434,930
Inactive features	56,913,111				56,913,111
Project investigations	2,183,000	331,985	438,493	226,923	1,185,599
Total cost	258,000,000	12,303,124	19,198,532	29,127,723	197,370,621
Construction facilities		642,238	−53,814	87,976	−676,400
Stores		195,731	−20,234	−3,869	−171,628
Operation and maintenance during construction	378,457	517	377,940		
Transfers, credits, and other expenditures	−2,064,125	−2,576,663	71,699	11,274	429,565
Total expenditures	256,314,332	10,564,947	19,574,123	29,223,104	196,952,158
Unliquidated obligations		10,734,937	−5,470,833	−5,264,104	
Total obligations, region 6	256,314,332	21,299,884	14,103,290	23,959,000	196,952,158

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
REGION 7					
Sioux City-Omaha 230-kilovolt transmission line and related substations	$5,501,000	$40,773		$1,476,000	$3,984,227
Sioux City-Sheldon-Sibley-Worthington 115-kilovolt transmission line and related substations	1,783,000				1,783,000
Sioux City-Humboldt 230-kilovolt transmission line and related substations	6,405,000				6,405,000
Sioux City-Harlan-Omaha 115-kilovolt transmission line and related substations	3,133,000				3,133,000
Humboldt-Grand Junction-Creston 114-kilovolt transmission line and related substations	2,411,000				2,411,000
Humboldt-Blue Earth 230-kilovolt transmission line	2,811,000				2,811,000
Future lines and substations	8,545,000				8,545,000
Total cost	30,589,000	40,773		1,476,000	29,072,227
Construction facilities				10,000	−10,000
Stores		156			−156
Project investigations		45,627	$10,371	10,000	−65,998
Operation and maintenance during construction				4,500	−4,500
Total expenditures	30,589,000	86,556	10,371	1,500,500	28,991,573
Repayments and advances		690			−690
Nonappropriation transfers		1,157			−1,157
Unliquidated obligations		40		494,500	−494,540
Subtotal obligations, Lower Platte River area	30,589,000	88,443	10,371	1,995,000	28,495,186
Gering-Sterling 115-kilovolt and related substations	1,846,000	1,542,360	184,308	89,771	29,561
Sidney-North Platte 115-kilovolt and related substations	1,557,000	616,563	389,271		551,166
Gering-Chadron 115-kilovolt and related substations	1,650,000	1,127,372	417,224	73,933	31,471
Seminoe-Westvaco 115-kilovolt and related substations	3,196,000	213,593	589,407	1,300,000	1,093,000
Alcova-Gering 115-kilovolt and related substations	3,494,000	285,002	155,000	150,000	2,903,998
Chevenne-Sidney 115-kilovolt and related substations	1,185,000	508,814	3,674		672,512
Casper-Gering 115-kilovolt and related substations	4,836,000	2,318,405	300,000	15,000	2,202,595
Ft. Randall-O'Neill 115-kilovolt transmission line	450,000	417,485	10,000		22,515
Glendo-Lusk 34.5-kilovolt and related substations	403,000	231,826		161,537	9,637
Alcova-Fremont 115-kilovolt transmission line	332,000				332,000
Future lines, substations and REA contions	733,000	23,751			709,249
General property	600,000	55,514	325,000	200,000	19,486
Total cost	20,282,000	7,540,685	2,373,884	1,990,241	8,577,190
Construction facilities		72,284	50,000	−15,241	−107,043
Stores		647,611		−183,000	−464,611
Project investigations		70,073	22,252		−92,325
Operation and maintenance during construction	430,961	185,961	245,000		
Transfers, credits and other expenditures	−44,942	−44,942			
Total expenditures	20,668,019	8,271,672	2,691,136	1,792,000	7,913,211
Unliquidated obligations		766,331	−766,331		
Subtotal obligations, North Platte River district	20,668,019	9,038,003	1,924,805	1,792,000	7,913,211
Total obligations, region 7	51,257,019	9,126,446	1,935,176	3,787,000	35,408,397
Grand total obligations	307,571,351	30,426,330	16,038,466	27,746,000	233,360,555
Method of financing:					
Allotment, fiscal year 1952			13,930,679		
Prior year balance available			2,547,945	440,158	
Balance available in subsequent year			−440,158		
Transfer to project				5,742,842	
Allotments required				21,563,000	233,360,555

Mr. NORRELL. Will you discuss this item?

Mr. LINEWEAVER. Mr. McPhail will take that item, Mr. Chairman.

GENERAL STATEMENT

Mr. MCPHAIL. Mr. Chairman, I have a statement and I would like to high light some portions of it. I will submit it for the record.

Mr. NORRELL. All right.

(The statement referred to is as follows:)

The major portion of funds requested for fiscal year 1953 will be used to continue the construction of transmission lines already under way. New funds are requested only for the most important required additions to the basic high-voltage transmission grid, as follows:

(1) *A 230-kilovolt transmission line from Sioux City, Iowa, to Omaha, Nebr.*—This 230-kilovolt transmission line is an integral part of the transmission system necessary to supply power to preference customers in the Omaha and east central areas of Nebraska. The line will be used to bring power to Omaha, and its terminus at this point will also serve as the point from which power will be transmitted at lower voltage to supply the other load centers. The Omaha area, served by a public power district, a preference-class customer, constitutes the largest urban and industrial center of the upper Missouri River Basin. Negotiations are now in progress for sale of power to the Omaha Public Power District as well as to the Nebraska Public Power System, which will also receive power at Omaha. The program dates for production of power at the Fort Randall and Gavins Point power plants require initiation of construction on the Sioux City-Omaha line in fiscal year 1953 if it is to be completed and ready for service coincident with power availability.

(2) *The Jamestown–Fargo–Fergus Falls–Benson–Granite Falls–Mankato–Blue Earth–Jackson–Fort Randall 230-kilovolt transmission line.*—This line will provide power to western Minnesota from the Fort Randall and Garrison power plants which are now being built by the Corps of Engineers.

Power consumers in western Minnesota have for a long time looked forward to the day when low-cost hydroelectric power from the Federal Government's Missouri River developments would be available to meet their growing needs. Until recently, however, the interested operating agencies, both public and private, had been unable to agree among themselves on a uniform plan for bringing this power from the generating plants to the ultimate consumer. Now, with the time fast approaching when the long-sought power will actually be available, these local operating agencies have, in a spirit of cooperation, developed and agreed upon a definite plan for the distribution of this power. The Bureau of Reclamation endorses their plan, since it is in accord with the policy of Congress that the Government-built power plants will be integrated to load centers.

In a letter dated December 4, 1951, 16 farm electric cooperatives and 3 private electric companies, all now operating facilities in the State of Minnesota, joined in a request that the Bureau of Reclamation revise its transmission line program to fit in with their new distribution plan. The line now under discussion will enable the Bureau to fulfill this request and will complete the initial 230-kilovolt transmission loop between Fort Randall and Garrison power plants. That the line is felt by the 19 operating agencies to be an important link in the proposed plan, is attested by the following quotations from their December 4 letter:

"United support for this 230,000-volt line is the heart of the plan. Specifically, this is how we visualize its working. The Government would build and own the 230,000-volt trunk line and send power from its Missouri River dams over the line on the first leg of its trip to the consumer. At appropriate points mentioned generally above, the big line would be tapped and power put into the lower-voltage lines of the cooperatives and the companies. Then over available lines the interested parties would team up to deliver the power to the ultimate users."

In order to have this line in service by the time the Army completes the power plants, it will be necessary to initiate construction in fiscal year 1953.

(3) *The Oahe-Midland 115-kilovolt transmission line in South Dakota.*—This 54-mile line will connect the Fort Randall-Oahe and Rapid City-Midland transmission lines, now under construction, and is required to provide Fort Randall power for the important Air Force base at Rapid City, S. Dak. A memorandum of understanding between the Rapid City Air Force base and the Bureau of Reclamation for 15,000 kilowatts of power has just recently been executed. The Department of Defense in its discussions have indicated that delivery of power to this load is extremely important.

(4) *The Billings-Yellowtail 115-kilovolt transmission line in Montana.*—This line will connect with the Lovell-Yellowtail line, funds for which have previously been appropriated. It will provide the means for relieving the existing power shortage in northern Wyoming. Power supply will be accomplished by the interchange of Fort Peck and Canyon Ferry power with the Montana Power Co., or, if necessary, by the purchase of energy from that company's recently completed steam plant at Billings, Mont. Previous discussions with the company indicate its willingness to cooperate in either respect.

(5) *The Seminoe-Westvaco 115-kilovolt transmission line in Wyoming.*—This line will bring low-cost hydroelectric power to the Westvaco Chemical Co., located at Westvaco near Green River, Wyo., and thus permit expansion of an essential industry. The operators of this plant are engaged in the development of trona (soda ash), a chemical used in the manufacture of aluminum, glass, soaps, detergents, and in many metallurgical processes. Its production, therefore, contributes to the Nation's supply of basic defense materials.

This line will also serve the Bridger Valley REA at Westvaco, and the Southern Wyoming Utilities Co., and the Sublett County REA at Rock Springs.

(6) *The Manville-Lance Creek extension of the Glendo-Lusk 34.5 transmission line in Wyoming.*—This line will provide electric service to the oil field at Lance Creek, Wyo. This field has been in existence for about 10 years, with ever-increasing pumping requirements and a corresponding growth in power demand. This increase must be met if production of vitally needed oil from this field is to be maintained.

NEW FEATURES

Mr. McPHAIL. There are several new features in connection with the Transmission Division this year which, for your information, are indicated in red on the map hanging on the wall. They constitute six features.

There are two 230-kilovolt transmission lines, one a backbone line in Minnesota, the other a line from Sioux City, Iowa, to Omaha, Nebr. Three 115-kilovolt lines with terminals as follows: Oahe to Midland, in South Dakota; Billings to Yellowtail, in Montana; and Seminoe to Westvaco, in Wyoming.

The sixth is an extension of the 34.5-kilovolt Glendo-Lusk transmission line in Wyoming, referred to as the Manville-Lance Creek extension.

BACKBONE LINE IN MINNESOTA

In connection with the backbone line in Minnesota, I would also like to place in the record a letter which has been sent to the Commissioner of the Bureau of Reclamation, signed by three operating private utilities in the area and a representative of the 16 REA cooperatives, ndicating their desire that this particular line be constructed by the Bureau.

Mr. NORRELL. All right.

(The letter referred to is as follows:)

WASHINGTON, D. C., *December 4, 1951.*

Mr. MICHAEL W. STRAUS,
Commissioner, Bureau of Reclamation,
Washington, D. C.

DEAR MR. STRAUS: The following farm electric cooperatives, 16 in all, and three private electric companies, all now operating facilities in the State of Minnesota, wish to confirm our plan outlined at the conference today with members of your staff in Washington, D. C.

This plan represents agreement between the cooperatives and the companies and was developed as the result of numerous conferences during the past 2 years. The cooperatives and the companies join in a request to the Bureau of Reclamation that it will revise its planned 230,000-volt transmission line and substations in western and southern Minnesota in accordance with the following plan.

This line would run generally from Garrison Dam in North Dakota to Fargo, Fergus Falls, Benson, Granite Falls, Mankato, and thence southerly and westerly serving southwestern Minnesota, and continuing to a suitable connection with

the Missouri River Basin power system. Substations from this line would be established generally at or near Fargo, Fergus Falls, Benson, Granite Falls, Mankato, and Jackson.

This plan pledges our full and complete cooperation with the people of Minnesota in obtaining their full share of whatever benefits may be available from the Missouri River projects and at the lowest cost to the public. Our plan calls for teaming up the lines of the cooperatives and companies with those of the Government to utilize the groups' facilities for the most economic operation.

United support for this 230,000-volt line is the heart of the plan. Specifically, this is how we visualize its working. The Government would build and own the 230,000-volt trunk line and send power from its Missouri River dams over the line on the first leg of its trip to the consumer. At appropriate points mentioned generally above the big line would be tapped and power put into the lower-voltage lines of the cooperatives and the companies. Then, over available lines, the interested parties would team up to deliver the power to the ultimate users. This plan, in our opinion, will give Minnesotans assurance that both the companies and the cooperatives are endeavoring to do everything possible to get Missouri River power for use in Minnesota at the lowest cost to the public. The plan was developed after engineering studies by the cooperatives and the companies demonstrated that integration of their own lines with those of the Government would be entirely feasible. Municipal power systems would also have an opportunity to participate. In addition, we would point out that this plan, in our opinion, would conserve construction materials now in critically short supply.

Please convey to Mr. McPhail and his staff our appreciation for meeting with us and advising us. You may be assured if this plan is submitted to the Budget Bureau and to the Congress that you may call on us for our wholehearted support.

Sincerely yours,

Agra Lite Cooperative; Traverse Electric Cooperative; Runestone Electric Cooperative; Lyon Lincoln Electric Cooperative; Nobles Cooperative Electric; Steel-Waseca Cooperative Electric; Brown County Rural Electric Association; Todd-Wadena Power and Light Cooperative; Lake Region Cooperative Electric Association; Minnesota Valley Cooperative Light and Power Association; Renville Sibley Cooperative Association; Southwestern Minnesota Cooperative Electric; Federated Rural Electric Association; South Central Electric Association; Central Minnesota Cooperative Power Association; Blue Earth-Nicollet Cooperative Electric Association; *Victor Hanson*, Secretary of Group of 16 Cooperatives; *Carl T. Gremicker*, Vice President, Northern States Power Co.; *Albert V. Hartl*, Secretary-treasurer, Otter Tail Power Co.; *C. A. Huiume*, Vice President, Interstate Power Co.

Mr. McPHAIL. We would be happy to answer any questions.

NO DUPLICATION OF EXISTING LINES

Mr. NORRELL. Will those lines duplicate any existing power lines?

Mr. McPHAIL. No, sir, they will not. They will supplement existing lines in many cases, as in the western part of Minnesota, for example, but they do not replace or duplicate any lines in any of the areas at all.

Mr. NORRELL. Are there any objections to any of them that you know about?

Mr. McPHAIL. I know of no objections.

AVAILABILITY OF MATERIALS

Mr. NORRELL. What about the scarce materials; are you going to have any trouble getting them?

Mr. McPHAIL. We will probably have difficulty getting materials because of the general shortage.

However, in order to make use of the capacity that will be available in the Fort Randall and Garrison power plants, these lines in our opinion must be started this year so that they will be available when

the plants are ready to operate and thus forestall any possibility of the generators remaining idle.

WORKING AGREEMENT WITH PRIVATE UTILITIES

Mr. NORRELL. Do you have any kind of a working agreement with the private utilities in the Missouri Basin?

Mr. MCPHAIL. Yes, sir, we have some working arrangements, particularly emphasized, I think, in Minnesota where the private utilities, in combination with the others are urging this construction.

The line from Sioux City to Omaha involves the Omaha public power district and the Nebraska public power district. We are working with those two agencies now in connection with contracts to cover power over that line.

We have an arrangement with one private utility, the Blackhills Power and Light Co., involving delivery of power over the line from Oahe to Midland line.

The Seminoe-Westvaco line would be the only line in the area, and no arrangements have been made there except discussions with the customers to be affected.

Also, in constructing the line from Billings to Yellowtail, we will provide a connection whereby the power shortage situation in North Wyoming can be relieved by transfer of power from Fort Peck into that area or by purchases from the Montana Power Co., from a new steam plant which has recently been completed at Billings.

The line to Lance Creek is an extension of an existing line from Glendo to Lusk that will provide power for the Lance Creek oil field area.

GENERATING INSTALLATIONS ON SCHEDULE

Mr. NORRELL. What about the generating installations of the Corps of Engineers on the main river dams, are they on schedule?

Mr. MCPHAIL. As far as we know. The latest information we have is that the first unit will come on the line at the Fort Randall plant in November 1953, and subsequent units will follow at about 4-month intervals.

At Garrison power plant in North Dakota the first unit is scheduled for April 1955, with other units following at 4-month intervals.

The Gavins Point Dam downstream on the State line between South Dakota and Nebraska has the first unit scheduled for April 1956, with other units to follow at 5- or 6-month intervals.

SCHEDULE OF INSTALLATIONS

Mr. NORRELL. I would like to have the record show, if you can supply it, a statement of the installation schedule, both by the Bureau of Reclamation and, if you can get it, the Corps of Engineers in that area. Can you file a statement covering that?

Mr. MCPHAIL. Yes, sir. I understand you desire the time when the various units are scheduled and the capacities involved?

Mr. NORRELL. Yes, sir.

Mr. MCPHAIL. We will be glad to put that in the record.

(The information requested is as follows:)

The following is an installation schedule of power generating units at Missouri River Basin plants of the United States Corps of Engineers and Bureau of Reclamation. The dates estimated are conditional upon the availability of adequate

appropriations to perform design and construction work on these and related facilities as required.

Plant	Capacity (kilowatts)	Date of operation
CORPS OF ENGINEERS POWER PLANT		
Gavins Point	100,000	
Units:		
No. 1	33,333	April 1956.
No. 2	33,000	October 1956.
No. 3	33,000	April 1957.
Fort Randall	320,000	
Units:		
No. 1	40,000	November 1953.
No. 2	40,000	March 1954.
No. 3	40,000	July 1954.
No. 4	40,000	November 1954.
No. 5	40,000	March 1955.
No. 6	40,000	July 1955.
No. 7	40,000	November 1955.
No. 8	40,000	March 1956.
Garrison	400,000	
Units:		
No. 1	80,000	April 1955.
No. 2	80,000	August 1955.
No. 3	80,000	March 1956.
No. 4	80,000	September 1956.
No. 5	80,000	March 1957.
Oahe	425,000	
Units:		
No. 1	85,000	Early in 1959.
No. 2	85,000	Do.
No. 3	85,000	In 1960.
No. 4	85,000	Do.
No. 5	85,000	Early in 1961.
Big Bend	120,000	
Units:		
No. 1	20,000	In 1959.
No. 2	20,000	In 1960.
No. 3	20,000	Do.
No. 4	20,000	In 1961.
No. 5	20,000	Do.
No. 6	20,000	In 1962.
BUREAU OF RECLAMATION		
Pony Hills	180,000	
Units:		
No. 1	45,000	In 1961.
No. 2	45,000	Do.
No. 3	45,000	In 1968.
No. 4	45,000	In 1973.
Des Lacs	60,000	
Units:		
No. 1	10,000	In 1964.
No. 2	10,000	Do.
No. 3	10,000	In 1968.
No. 4	10,000	Do.
No. 5	10,000	In 1973.
No. 6	10,000	Do.
Crosby	48,000	
Units:		
No. 1	8,000	In 1964.
No. 2	8,000	Do.
No. 3	8,000	In 1968.
No. 4	8,000	Do.
No. 5	8,000	In 1973.
No. 6	8,000	Do.

Plant	Capacity (kilowatts)	Date of operation
BUREAU OF RECLAMATION—con.		
Absaroka	50,000	
Units:		
No. 1		1961.
No. 2		1961.
No. 3		1961.
Bald Ridge	30,000	
Units:		
No. 1		1960.
No. 2		1960.
No. 3		1960.
Boysen	15,000	
Units:		
No. 1		1952.
No. 2		1952.
Canyon Ferry	50,000	
Units:		
No. 1		1953.
No. 2		1953.
No. 3		1953.
Hunter Mountain	12,000	
Units:		
No. 1		1962.
No. 2		1962.
Kenil	1,200	
Units:		
No. 1		1958.
No. 2		1958.
Little Porcupine	18,000	
Units:		
No. 1		1957.
No. 2		1957.
No. 3		1957.
Lyons	24,000	
Units:		
No. 1		1959.
No. 2		1959.
No. 3		1959.
Moorhead	8,000	
Units:		
No. 1		1957.
No. 2		1957.
Portage	20,000	
Units:		
No. 1		1958.
No. 2		1958.
Sunlight	20,000	
Units:		
No. 1		1959.
No. 2		1959.
Thief Creek	60,000	
Units:		
No. 1		1959.
No. 2		1960.
No. 3		1960.
Tiber	2,000	
Units:		
No. 1		1957.
No. 2		1957.
No. 3		1957.
Tongue River	25,000	
Units:		
No. 1		1960.
No. 2		1960.
Yellowtail	200,000	
Units:		
No. 1		November 1957.
No. 2		November 1958.
No. 3		November 1958.
No. 4		November 1959.
Glendo	24,000	
Units:		
No. 1		1956.
No. 2		1956.
Harlan	1,200	
Units: No. 1		Not determined.

RELATIONSHIP TO DEFENSE EFFORT

Mr. NORRELL. Now, discuss briefly what relationship, if any, this has to the defense program.

Mr. MCPHAIL. There are varying relationships with the defense program.

First, the matter of making available additional power supplies in the areas tributary to the Garrison and Fort Randall plants, where there is a shortage of power. Additional power is required for all types of industry that are now in that area or for supplying the requirements of defense industries that might care to locate in the area in the future.

The line to Westvaco is important in connection with the development of trona, which is a soda-ash material that is used in connection with a number of defense items.

The Lance Creek line is primarily to step up the production of oil in the Lance Creek field.

The line from Billings to Yellowtail is to make power available and also to stimulate oil production in the northern part of Wyoming, as well as relieving other power shortages in that area.

With reference to the Oahe-Midland line, the primary load on that line will be the Rapid City Air Base, for which we have a contract for 15,000 kilowatts. The Air Force advises that, unless we can get that line in at the time the Fort Randall plant comes in operation, it will be necessary for them to install fuel-burning equipment to take its place.

Mr. NORRELL. Mr. Jensen?

BACKBONE LINE FROM GARRISON TO FORT RANDALL DAM

Mr. JENSEN. In connection with the line that you have called the backbone line, running from Bismarck in North Dakota—is that where it starts?

Mr. MCPHAIL. Yes, sir. Actually, it starts at Garrison. It is a loop line.

Mr. JENSEN. From Garrison, running east and southeast into Minnesota and finally terminating back at Fort Randall Dam—that is a comparable line to the one that the Senate turned down last year; is it not?

Mr. MCPHAIL. Somewhat, yes, sir.

Mr. JENSEN. At that time I believe the private utilities in that area testified to the fact that they were ready and willing to build the necessary transmission line and to enter into contracts for sale of Government power to preferred customers and other power users. Is that not a fact?

Mr. MCPHAIL. I am not certain about the testimony that you speak of, Mr. Jensen. There was not at that time, however, as I understand it, agreement among the people involved in west Minnesota as to what should be built.

ABILITY OF PRIVATE UTILITIES TO BUILD LINES

Mr. JENSEN. I understand, but the facts are that the private utilities have the financial capacity and the willingness to build the necessary lines. I am quite sure of that.

Now, of course, I learned, as you stated, Mr. McPhail, that those private companies that operate in that area have agreed to let the Bureau of Reclamation build these lines.

The question—and it is very important—before Members of Congress is: Are we justified in taking the taxpayers' money and building that backbone transmission system which is going to cost millions of dollars just because the private utilities now agree to let the Bureau of Reclamation build it and hence they will be relieved of that expense? I think we Members of Congress have a responsibility to look into that matter very carefully.

LINE FROM SIOUX CITY TO OMAHA

Now, the line running from Sioux City to Omaha was denied by the Congress last year, and here you are asking for it again.

That is quite a little bit of money to spend, to build a line into a State that pays no Federal taxes from power generated from their facilities, or practically nothing; and here you are asking the taxpayers of America to spend millions of dollars to transmit power from Government-financed dams into a State which is one of the public-power States and does not pay Federal taxes; they are not obligated to pay any Federal taxes.

COST OF FACILITIES AND LINE FROM FORT RANDALL DAM TO LUVERNE, MINN.

Now, I am going to ask you to do one thing, Mr. McPhail. Please give this committee an estimate of the cost of a line for that portion that you already have proposed from Fort Randall to Luverne, Minn., and include in that estimate the necessary facilities to make it possible at Luverne, or in that area, for the people of Minnesota to come to Luverne to get their power.

I do that for this reason: that Congress has appropriated money to build the line to Sioux City, Iowa, and they said in effect when they did that, that the people in Iowa—the REA and the private utilities and municipalities—could then run their transmission lines to Sioux City.

We have also appropriated money to build a line over into Nebraska. That line is not quite as long as the one to Sioux City, or the one that I proposed, or that I asked you to give an estimate on, at O'Neill; but, owing to the fact that the State of Nebraska pays no Federal taxes, I feel that by running a line, even though it may be a short line, to O'Neill, which already is under construction or possibly completed by this time, we are treating Nebraska fairly and justly.

So, please furnish that information, Mr. McPhail. I am asking you to do this in all sincerity and fairness to the State of Minnesota, because I want Minnesota to be treated just as fairly as the State of Iowa has been treated.

Mr. McPHAIL. Off the record.

(Discussion off the record.)

Mr. McPHAIL. We will be glad to furnish the estimate that you asked for, Mr. Jensen.

(The information requested is as follows:)

The estimated cost of a 230-kilovolt transmission line from Fort Randall power plant to Luverne, Minn., together with the necessary facilities at Luverne for

connection to utility lines at that point, is approximately $10,400,000, based on about 145 miles of line and 150,000 kilovolt-ampere of substation capacity. This provides only one-half of the capacity for the Minnesota area that can be provided in the presently scheduled 230-kilovolt loop, and none of the benefits to system stability from the 230-kilovolt transmission loop operation will be realized.

Mr. McPHAIL. I would like to point out that a line of the nature you speak of will only have a limited capacity into western Minnesota, as compared to the backbone line we have proposed and which involves the transmission from two plants over two lines into the area.

Again, in connection with the line from Fort Randall to O'Neill, that is only a 115-kilovolt line, of quite limited capacity, not sufficient for any reasonable needs in Nebraska.

POWER TO BE DISPOSED OF

We will have at Fort Randall and Garrison about 470,000 kilowatts of capacity that must be disposed of, and to handle that capacity it is necessary to have a number of high-voltage lines. The best that we can expect of a single 230-kilovolt line is about 150,000 kilowatts.

So, when you match the plant capacity on the one hand and the market requirements on the other hand, it is necessary to construct facilities capable of handling the capacity of the plants and further to provide reasonable service in line with the type of service the people in this country have become accustomed to.

We are being urged by the three private utilities, as evidenced by the letter that I have put in the record and by meetings that we have had with those utilities, to construct a backbone line of this kind so that in turn they can get power in rather large quantities and in turn make it available to the people in that area.

Mr. JENSEN. Yes, but you know, Mr. McPhail, that even the private utilities do not have their own way always with Congress. Many, many times we have built lines that they do not want, and we sometimes do not build lines that they do want. So, just because these private utilities want them does not mean that the Congress is obligated to spend the people's money in order to relieve the private utilities of a responsibility. That is the only answer I can give to that. Of course, it is up to the Congress to determine that. That is all.

YELLOWSTONE DIVISION, SAVAGE UNIT, MONTANA

Mr. KIRWAN. The next unit is the Yellowstone division, Savage unit, Montana.

There was no allotment for 1952 for this unit. The estimate for 1953 is $2,000.

Pages 501 through 503 will be placed in the record.

(The pages referred to are as follow:)

YELLOWSTONE DIVISION, SAVAGE UNIT, MONTANA PHASE A

Summarized financial data

Estimated total obligations		$504,404
Total obligations to June 30, 1951		471,451
Prior-year balance available	$4,953	
Total obligations, fiscal year 1952		4,953
Allotment, fiscal year 1953	$2,000	
Total obligations, fiscal year 1953		2,000
Balance to complete		26,000

JUSTIFICATION OF ESTIMATE

Location.—Adjacent to the Yellowstone River in the vicinity of the town of Savage, Richland County, Montana.

Description.—The project is to provide a full water supply for the irrigation of 2,218 acres of semiarid land roughly paralleling the Yellowstone River for a distance of approximately 7 miles. Water is supplied by pumping a total lift of 84 feet from the main canal of the Lower Yellowstone project. Capacities of the pumping plant and Savage main canal are 42 second-feet.

Repayment.—The total estimated cost of the unit ($559,420) has been allocated to irrigation; however, minor fish and wildlife benefits are expected to accrue. Repayment of the distribution system in accordance with the present repayment contract will be completed in 40 years with a total repayment of $338,000 in a period of approximately 75 years starting subsequent to the 8-year development period.

Status.—Construction began in April 1949. As of June 30, 1952, the project will be 100 percent complete except for the drainage program. Work now under way consists of minor additions and alterations to structures and installations and continuation of drainage investigations.

Work proposed, fiscal year 1953.—Program for fiscal year 1953 includes drainage investigations, including the observation of ground-water fluctuations resulting from initial irrigation of the unit, and preliminary design of drainage structures.

Justification.—Lack of drainage, particularly in areas of heavy soils with high salinity, often causes land to be rendered nonproductive. Investigational work is necessary to determine drainage requirements and plan drainage structures. The total estimated cost has been increased from $536,300 due to the distribution of accumulated construction-equipment depreciation, distribution of preliminary investigation costs, and an extra claim for pumping plant equipment furnished under a contract with General Electric Co.

Program item	Estimated total	Total to June 30, 1951	Program current year 1952	Program budget year 1953	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Pumping plant	$209,420	$203,204	$6,216		
Canal	220,600	218,070	2,530		
Laterals	97,400	94,660	2,740		
Drains	31,000	2,261	739	$2,000	$26,000
Farm unit development	1,000	521	479		
Total cost	559,420	518,716	12,704	2,000	26,000
O. and M. during construction	669	669			
Transfers, credits, and other expenditures	−55,685	−55,214	−471		
Total expenditures	504,404	464,171	12,233	2,000	26,000
Unliquidated obligations		7,280	−7,280		
Total obligations	504,404	471,451	4,953	2,000	26,000
Method of financing:					
Prior year balance available			4,953		
Allotments required				2,000	26,000

Mr. KIRWAN. Is this another of the smaller irrigation units served by pumping from the river?

Mr. MARKWELL. Yes, sir.

I have a brief statement to make.

GENERAL STATEMENT

Construction of the Savage unit is practically complete and the unit is in operation, with water available to 2,218 acres of new land. The allotment of $2,000 required for fiscal year 1953 is for the construction of drains which cannot be completed satisfactorily without operating experience. Otherwise, construction is finished and no further work is contemplated.

The total cost of necessary drains is estimated to be about $31,000. Approximately $3,000 of this work has already been done, and only a small amount can be executed in fiscal year 1953, leaving most of the drainage construction to be accomplished in fiscal year 1954, after operations have established definite plans.

Adequate drainage is essential to the sustained operation of the unit, and to avoid the ruining of land, it must be accomplished as the need develops. Construction of the pumping plant, canal, and lateral system was started in May of 1949, and completed December of 1949, making the Savage Unit the first irrigation unit of the Missouri River Basin project to go into operation.

The unit is located on the Yellowstone River near the town of Savage in Richland County, Mont.

The amount requested for 1953 is for drainage work and studies. The project has just gone into operation. These studies must be made to determine what additional drainage, if any, will be necessary, based upon operating experience.

Dr. FENTON. Is this to start it off?

Mr. MARKWELL. No, the $2,000 requested is a finishing operation.

CONSTRUCTION COST TRENDS, LIMITATION ON CONSULTANTS, SECURITY OF RECLAMATION FACILITIES AND FORCE ACCOUNT CONSTRUCTION

Mr. LINEWEAVER. Mr. Markwell has a general statement on construction cost trends, a statement on the limitation on consultants, a statement on security of reclamation facilities, and a statement on force account construction.

(The statements referred to are as follows:)

LIMITATION ON CONSULTANTS

The appropriation act of fiscal year 1952 contains a limitation of $50,000 on funds the Bureau may make available for procuring the services of experts as uthorized by section 15 of the act of August 2, 1946. The deletion of this limitation on the amount available for these purposes is recommended in the President's budget.

In the course of normal Bureau operations it is expeditious at times to obtain the expert services of consulting organizations. The Bureau does not make a general practice of having outside engineering firms prepare designs for its work, yet it occasionally is good economy to do so rather than to augment the regular staff with extra personnel to handle special work that is not encountered with sufficient frequency to warrant staffing for it. It is also essential that we be able to employ individual consultants on special problems for temporary periods. Under the $50,000 limitation provided in the 1952 act, there is not enough margin to provide for both the individual consultants and fees for organizational services that may be required.

The proposed revision to the language relating to consultants would also eliminate the phrase "when authorized by the Secretary" to remove any doubt that such authority may be exercised under a proper delegation of authority by the Secretary.

SECURITY OF RECLAMATION FACILITIES

In the present national defense emergency declared by the President on December 16, 1950, and while the threat of foreign aggression remains a menace to the security of the United States it is vitally important that the facilities of the Bureau of Reclamation which are essential to the national economy and which directly serve the defense effort should be protected against the possibility of damage or destruction through subversive action or surprise attack. Among the Reclamation facilities which are essential to the national security by virtue of the power supplied to industrial areas or the water which is made available for essential domestic requirements, are major dams, power plants, and related work, the nam-

ing of which on the record for obvious reasons is not desirable. Should any of these major facilities be seriously damaged, or its service capacity greatly reduced, the loss would have very grave consequences because substitute services would not be available, and repairs would require long periods of time, and the use of strategic materials and manufacturing capacity which are urgently needed for other defense purposes.

The Department of the Interior and the Bureau of Reclamation are aware of the potential danger to the critical facilities under their responsibility and have taken measures within available means for their security. Following the proclamation of the current national emergency by the President, the Secretary of the Interior directed that public access to sensitive areas be restricted. Since then the vital portions of power plants, dams, and other critical installations have been closed to all persons with the exception of authorized Reclamation personnel or individuals having specific clearance for access to such areas. Intensive study has also been given to additional measures which would be required to provide fully effective security protection. Such measures would include the provision of security guard forces, additional fencing, lighting and communication systems, alarms and other warning devices, and procedures for security supervision of personnel having access to restricted areas. These measures also would include studies to determine what additional steps should be taken in the event the emergency becomes more critical, or to meet the possibility of direct enemy attack.

In order to provide the security measures which are considered necessary for fully effective protection of the Bureau's critical facilities nonreimbursable funds would be required. Funds normally appropriated for construction and operation of reclamation projects are reimbursable and are to be repaid by the irrigators, power users, and other who are required to repay such costs. It would, therefore, be improper to expect these project beneficiaries alone to bear the additional costs of security protection imposed upon the projects solely in the interest of national defense. Such costs should be charged to the cost of national security through the medium of nonreimbursable appropriations.

Since the declaration of the emergency by the President in December 1950, numerous conferences have been held with the Bureau of the Budget, the defense agencies, the Facilities Protection Board, and others interested. Various estimates of our requirements have been submitted. In August 1951 we were informed by the Bureau of the Budget that it will be guided in consideration of our security estimates by the advice and recommendations of the Facilities Protection Board which has been established under the Interdepartmental Committee on Internal Security with responsibility for developing security standards and providing interdepartmental consideration and stimulus to the improvement of existing and future Government programs for the physical protection of American industry and the supporting economic resources against sabotage, espionage, and other hazards endangering defense protection. Further conferences were held with the Board and we are now informed that the Board would be in a position to review the Interior Department's security requirements with respect to critical power facilities in the near future. Following action by the Board on this matter, further steps will be taken as appropriate in an effort to obtain funds for security requirements as soon as possible.

FORCE ACCOUNT CONSTRUCTION

The appropriation act of 1952 limits the amount of construction that may be done by force account to 12 percent of the allotment to any project from the appropriation for construction and rehabilitation, except that not to exceed $225,000 on any one project may be expended for construction work by force account when the work is unsuitable for contract or when excessive bids are received; and except in cases of local emergencies. The Bureau has a long-standing policy of construction by contract. On several projects the force-account limitation increases our costs and delays construction, particularly on projects in the final stages of construction when activities such as drainage work which do not lend themselves readily to contract construction comprise a relatively large part of the project program. Difficulty has also been experienced on installation of pumps and hydroelectric generating equipment. Installation of this type of equipment requires close control and much testing and adjusting, so that it is more suited to force account than to contract performance. Frequently the construction work must be coordinated with project operations and in such instances force-account work is more flexible and less costly. Contracting for such work has resulted in delays and in increased construction costs.

Perhaps more important, material shortages together with the ready availability of attractive work for contractors elsewhere often result in a failure to receive satisfactory competition on particular jobs, as happened during and immediately after World War II, in which cases there should be available to project engineers the opportunity to do the work more economically by our own forces. The Bureau should not be foreclosed from utilizing such means in case of necessity without the restrictive 12 percent limitation by projects. Although the 12 percent limitation as applied on a project by project basis causes increased costs and delays on some individual projects, our over-all force account activities in fiscal year 1951 amounted to only 2.4 percent of the allotment for construction and rehabilitation and we intend to continue our policy of construction by contract when it is in the best interests of the Government. The determination of what work should be done by force account and what should be contracted is a matter which should be left to the judgment of the engineers administering the program rather than imposing an arbitrary limitation which does not permit doing the work most economically and in the Government's best interests.

GENERAL STATEMENT—CONSTRUCTION COST TRENDS

Construction costs in the calendar year 1951 have moved up sharply. The composite cost index for work representative of the type done by the Bureau of Reclamation has gone from 2.15 in January 1951 to 2.30 as of January 1952 (January 1940=1.00). This is highest point the cost index has reached in the Bureau's history.

During the first half of the calendar year 1951, costs of Bureau construction increased materially over what they were during the previous year as a result of unsettled world conditions. Bids on work involving primarily labor and equipment reflected only wage increases and higher equipment costs when good competition prevailed, as it did in most areas. In areas of defense activity, there was less bidder interest because of ample opportunities for construction contractors to bid on other work and bids were sometimes erratic and often high. Bids on work involving furnishing large amounts of construction materials and fabricated products by the contractor was as high or higher than at any other time in the history of the Bureau. Bids received on this type of work indicated reluctance of bidders to contract for furnishing materials because of the uncertainty. Bid prices on materials were erratic and showed increases of from 20 to 100 percent over June 1950. This was probably due to shortages, real or anticipated, caused by purchases for private interests, Government defense activities, and the military.

Defense activity did not reach the proportions planned and predicted for the year, and the situation with regard to materials was alleviated during the later months. Anticipated shortages in some materials failed to develop, and some materials, though difficult to obtain and slow of delivery, were available through the medium of Government allocation. Many restrictions have been applied to the use of certain metals which released materials for more essential construction. As a result bidding became more uniform and less erratic toward the end of the year. Lower bid prices, however, are not expected to prevail for some time, as defense activities will continue with the inherent materials problems.

During the last 2 months of 1951, the number of bidders on construction increased markedly, and the increased competition resulted in some very favorable bids. Whether this condition continues depends upon the nature and amount of construction work available to contractors. Contractors' costs have increased throughout 1951 and will rise in 1952, as construction wages are expected to continue to move up at a steady rate. As to materials, we have experienced and indications are that we may continue to expect increases in cost.

Major suppliers of equipment requiring long delivery periods continue to submit bids for such equipment though the prices are high and delivery slow. Price stipulations are frequently included in bids for all kinds of materials, particularly electrical equipment. This results in more bids being received and lower ultimate cost if price increases do not materialize.

In the interest of conserving critical materials the Bureau has alerted its designers to practice the substitution of more readily available materials for ones which may be in short supply. This procedure will expedite construction which otherwise would be delayed, however costs may be higher.

We have also worked closely with the contractors' organizations in an effort to reduce costs and keep work under way by the simplifications of our specifications and contract requirements and the rescheduling of work where necessary.

Cost indexes for construction work

[January 1940=1.00]

	January 1951	July 1951	October 1951	January 1952
Dams:				
Earth	1.95	2.10	2.10	2.10
Concrete	2.15	2.25	2.25	2.25
Pumping plants:				
Building and equipment	2.15	2.30	2.35	2.40
Structures and improvements [1]	2.35	2.50	2.55	2.55
Equipment	2.00	2.10	2.15	2.20
Pumps and prime movers	1.95	2.10	2.10	2.20
Accessory electric and miscellaneous equipment	2.05	2.20	2.20	2.20
Discharge pipes	2.35	2.50	2.50	2.55
Canals and conduits:				
Canals	2.15	2.30	2.35	2.40
Conduits (tunnels, free flow, concrete lined)	2.30	2.35	2.45	2.45
Laterals and drains	2.45	2.50	2.55	2.65
Power plants, hydro:				
Building and equipment	2.10	2.20	2.25	2.30
Structures and improvements [1]	2.35	2.45	2.50	2.55
Equipment	2.00	2.10	2.10	2.20
Turbines and generators	1.95	2.10	2.10	2.20
Accessory electrical equipment	2.10	2.10	2.10	2.20
Miscellaneous equipment	2.10	2.20	2.20	2.20
Penstocks	2.35	2.50	2.50	2.55
Transmission switchyards and substations	2.05	2.20	2.20	2.20
Transmission lines (wood pole)	1.90	2.20	2.20	2.25
Transmission lines (steel tower)	1.95	2.15	2.15	2.15
Permanent general property buildings	2.50	2.60	2.60	2.60
Roads and bridges:				
Primary roads	2.05	2.25	2.25	2.30
Secondary roads, unsurfaced	1.90	2.10	2.15	2.25
Bridges	2.20	2.45	2.45	2.45
Composite index	2.15	2.25	2.25	2.30

[1] Indexes for structures and improvements on pumping plants and power plants are based on a reinforced concrete structure.

NOTE.—The above cost indexes for construction work are based on the combined costs of material and labor furnished by the contractor and material and labor furnished by the Government.

PHASE B UNITS BEING PREPARED FOR CONSTRUCTION

Mr. KIRWAN. We will now take up Missouri River Basin project, phase B units being prepared for construction.

The allotment for this activity for 1952 is $2,889,000. The estimate for 1953 is $383,500.

Pages 505 through 517 will be placed in the record.

(The pages are as follows:)

Phase B—Units being prepared for construction

Allotment, fiscal year 1952	$2,889,000
Prior year balance available	1,605,322
Balance available in subsequent year	−1,392,337
Total obligations, fiscal year 1952	3,101,985
Allotment, fiscal year 1953	383,500
Prior year balance available	1,392,337
Total obligations, fiscal year 1953	1,775,837

JUSTIFICATION OF ESTIMATE

Location.—The developments of the Missouri River Basin project are located within the drainage basin of the Missouri River within the States of Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming. Power marketing extends into Iowa, Minnesota, and Missouri.

General conditions.—Phase B investigations of the Missouri River Basin are performed to develop definite plans for individual units of the Missouri River

Basin project which are being made ready for construction and to set forth an orderly program for the conservation, use and control of resources of the basin. These studies are programed on a unit basis. They include detailed surveys and preparation of final plans and other preconstruction work which must be undertaken before the unit is ready for the initiation of actual constructilon.

Investigations consist of such activities as continuing review of and adding to the data collected by previous surveys and investigations, compiling of economic data, detailed land classification, drainage studies, mapping surveys of selected areas, gathering geological data and information at dam sites, establishing pumping-plant locations, field and office studies on dams, canals, power lines, etc., preparation of maps, charts and graphs as required for analysis and report purposes and preparation of firm-cost estimates based on current prices.

The bringing together of such investigations results in a definite plan for final designs and estimates, issuance of specifications, orderly construction programs, repayment capabilities, and logical operation and maintenance methods.

The following units will be active in the preconstruction stage during fiscal year 1953:

Bighorn Basin division, Bighorn unit, Wyoming

Description.—This unit is now a combination of two units which were formerly known as Bighorn No. 2 unit and Bighorn No. 3 unit, which were located along the Big Horn River. Development of the unit will provide water for 3,200 acres of irrigable land.

Work proposed, fiscal year 1953.—The funds scheduled for fiscal year 1953 will be expended for the preliminary studies and estimates of the pumping plants, canals, and lateral system for preparation of volume I of the Definite Plan Report to be completed early in fiscal year 1954.

Bighorn Basin division-Bluff unit, Wyoming

Description.—The primary purpose of the Bluff unit is to provide a full water supply to 1,200 acres of new land by means of two pumping plants which will lift the water from the existing Bluff canal into the proposed lateral systems.

The Definite Plan Report will have been completed during fiscal year 1952, and designs and specifications will be prepared during fiscal year 1953, so that construction can begin as soon as construction funds are available. Negotiations leading to the execution of a repayment contract are scheduled to be continued.

Bighorn Basin division, Hanover unit, Wyoming

Description.—The primary purpose of the unit is to provide a full water supply for 6,200 acres of semiarid land. Four pumping plants will lift water from the existing upper Hanover canal to serve the new lands.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, volumes I and II of the Definite Plan Report will have been completed. During fiscal year 1953 repayment negotiations will continue so that construction can start as soon as construction money is available.

Bighorn Basin division, Shell Creek unit, Wyoming

Description.—The Shell Creek unit is located along Shell Creek near the town of Greybull, Big Horn County, Wyo. Major construction features to provide a supplemental water supply for 6,600 acres, now inadequately irrigated, will be Red Gulch Dam and Reservoir, Shell Creek diversion dam, Red Gulch feeder canal, canals and laterals, and drainage system.

Work proposed, fiscal year 1953.—Detail land classification will be initiated on this unit early in fiscal year 1953, and other surveys will be continued toward completion of volume I of the definite plan report in fiscal year 1955.

Bighorn Basin Division, Shoshone extensions unit, Wyoming

Description.—The Shoshone extensions unit, located in the Bighorn Basin in northwestern Wyoming, will provide a full water supply for the irrigation of 92,000 acres of new land and a supplemental water supply for 3,400 acres.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, preliminary surveys and investigations will be well advanced on the unit and volume I of the definite plan report will be submitted to the commissioner. During fiscal year 1953, detailed surveys and investigations, foundation explorations, land classification surveys, and other pertinent engineering studies will be continued. In order to permit the start of construction in fiscal year 1954, design data will be collected for initial features of the unit.

Cheyenne Division, Rapid Valley unit, South Dakota

Description.—The principal purposes of the unit are to furnish a full supply of water to Rapid City and to the Rapid City Army Air Base, to provide a full water supply to 2,200 acres of new land under the Iowa Canal extension, and to furnish a supplemental water supply to 12,000 acres of presently irrigated land of the Rapid Valley project. Facilities of the unit include Pactola Dam and Reservoir, reconstruction of the Iowa Canal and Diversion works, and construction of the Iowa Canal extension.

Work proposed, fiscal year 1953.—The definite plan report will be completed in fiscal year 1952. During fiscal year 1953 repayment negotiations will continue and additional design data will be collected for Pactola Dam to permit start of construction as soon as funds are available.

Helena-Great Falls Division, Helena Valley Unit, Montana

Description.—The Helena Valley Unit, located near the city of Helena, Mont., will provide for the irrigation of 21,100 acres, part of which is presently irrigated. The physical works would consist of a pumping plant located at Canyon Ferry Dam, a tunnel leading to a 48-mile canal encircling the valley and necessary distribution and drainage system. The irrigated area of the valley has decreased over the past few years primarily because of the high cost of pumping. The system has deteriorated and at the present time less than 5,000 acres receive irrigation water by means of pumping.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, volume I of the Definite Plan Report will have been completed, and funds are requested for fiscal year 1953 to continue detailed design surveys on the pumping plant, tunnel, canals, laterals, and drains.

James Division, Oahe Unit, South Dakota

Description.—The 750,000 irrigable acres of the Oahe Unit are located in east central South Dakota. Water for the unit will be obtained by pumping from the Oahe Reservoir now under construction by the Corps of Engineers on the Missouri River and transported by a main canal system for a distance of approximately 105 miles in an eastward direction. An extensive system of canals and laterals will be required to serve the unit area.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, over 2,400,000 acres of semidetailed land classification surveys will be completed, detailed topography of the major structure sites will be well advanced, the Huron and Redfield Development Farms will be in operation and other investigations of drainage, foundation conditions, economic factors, etc., will be well under way. The funds requested for fiscal year 1953 will permit the continuation of detailed investigations of foundation conditions at the Oahe pumping plant and the preparation of the designs for the pumping plant itself. Improvements of the engineering plan by obtaining additional detailed data will be continued. Water supply and use studies as well as drainage investigations will be under way. Land classification activities will consist of detailed land classification of approximately 25,000 acres in selected areas. The operation of the Huron and Redfield Development Farms will continue with greater emphasis being placed on water requirement and drainage studies as well as crop varieties. The Miller-Vayland Development Farm will be placed in operation. Preliminary land development, water requirements, and farm unit subdivision data will be analyzed for the definite plan report. Economic studies will be continued on municipal and industrial water requirements, payment capacity, benefits, and preliminary cost benefit ratios. Cooperative studies with the South Dakota State College and United States Department of Agriculture will continue.

Jefferson Division, East Bench unit, Montana

Description.—The East Bench unit, located in the vicinity of Dillon in southwestern Montana, will provide an irrigation water supply for 25,000 acres of new land and 14,500 acres of presently irrigated land. The unit would consist of the Clark Canyon Dam and Reservoir on the Beaverhead River, a diversion dam, and a system of canals, laterals, and drains.

Work proposed, fiscal year 1953.—Funds are requested to continue project investigations which will have been well advanced. This will include studies of the general plan, land classification surveys, drainage studies, agricultural and economic surveys, and hydrology and reservoir operation studies. The economic and water supply studies will be completed. Preliminary plans and estimates will be made for all features.

Lower Bighorn Division, Hardin unit, Montana

Description.—The Hardin unit, located in the Lower Big Horn River Basin near Hardin, Mont., consists of about 44,000 acres of new irrigable land and 1,800 acres of irrigated land to be furnished a supplemental supply.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, topographic mapping of the unit will be completed and detailed land classification will be under way. With the funds requested, design studies leading to the development of the engineering plan will be continued. Design data will be prepared for submission late in the fiscal year. Surveys necessary for the location of the pumping plant and distribution system wil be initiated.

Middle Loup Division, Farwell unit, Nebraska

Description.—The Farwell unit, one of the four units which comprise the Middle Loup Division, includes one major storage reservoir and several irrigation features which will permit the irrigation of about 52,300 acres of land located for the most part in the Middle Loup Valley in Valley, Sherman, and Howard Counties, Nebr.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for a continuation of surveys and investigations leading toward preparation of the definite plan report. Work to be accomplished includes detailed surveys of Ashton Dam and feeder canal; completion of preliminary field location on Farwell canals; location and topography of surface drainage check dams; final lay-out for Sargent laterals and drains; agricultural surveys; water supply studies, detailed foundation exploration drilling for the canals, the dam and reservoir, and the diversion dam; and other studies required in the preparation of the report.

Middle Loup Division, Sargent unit, Nebraska

Description.—The Sargent unit is located in Blaine and Custer Counties, Nebr. Project works consisting of the Milburn Diversion Dam, Sargent and Lillian Canals, Woods Park pumping plant, and attendant laterals and drains would provide water to irrigate 17,375 acres of irrigable land and to operate the Lillian hydroelectric plant with an installed capacity of 4,360 kilowatts. A portion of the power output would be used to operate sediment dredging facilities at Milburn Diversion Dam. However, construction of the Lillian power plant is not planned until economic conditions justify such action. This probably will not occur until low cost power from the Fort Randall and fuel consuming power plants is absorbed.

Work proposed in fiscal year 1953.—The detailed investigations are well advanced for the Milburn Diversion Dam, Sargent Canal, Woods Park pumping plant, and the Sargent laterals and drains and final plan and specification data thereon will be completed during fiscal year 1952. A definite plan report on the entire unit will be completed in fiscal year 1952. All activities in fiscal year 1953 will be directed toward the completion of engineering plans, negotiations, and other preconstruction items in order that construction may be initiated as soon as funds are available.

Missouri-Souris Division, Crosby-Mohall unit, North Dakota

Description.—Crosby-Mohall unit comprises 1,000,000 acres of dry-land farming area in northwestern North Dakota. The present plan of development contemplates irrigation of this land with water diverted from the Missouri River below Fort Peck and carried by canal to Medicine Lake Reservoir of the Missouri diversion unit. Water enters Crosby-Mohall unit by pumping through Grenora pumping plant from Medicine Lake Reservoir. The water will be delivered to the unit area by means of the 107-mile-long Souris Canal, dropping through Crosby and Des Lacs power plants. A bypass from the Souris Canal above the Crosby power plant will deliver water to Crosby Reservoir for storage to meet irrigation demands and to assist in the generation of electrical energy at Des Lacs power plant. In addition to the major features, an extensive system of distribution canals and laterals will be required on the unit land. Return flows from the Crosby-Mohall area will be collected and used for municipal and irrigation purposes in the central and eastern portions of the State, and for the restoration of Devils Lake. Unused return flows will be channeled back to the Missouri River via the James River. The construction of this unit has been scheduled to coincide with availability of water in the Medicine Lake Reservoir.

Work proposed, fiscal year 1953.—With the funds requested for fiscal year 1953, semidetailed land classification will be continued and the detailed land classification will be completed on selected areas. Engineering surveys will be continued

on selected irrigation areas and for major structure sites. Drainage, land use and economic studies will be continued. The operation of the development farm will be continued.

Missouri-Souris Division, Devils Lake unit, North Dakota

Description.—The Devils Lake unit comprises that part of the Missouri-Souris Division beginning with the Collection Canal along the eastern edge of the Crosby-Mohall unit, and continuing southeast to the headwaters of the Jamestown Reservoir, near Juanita, N. Dak. The return flows from the Crosby-Mohall irrigable lands will be diverted by the Souris Diversion Dam into the Sheyenne Canal, from which they will empty into the Sheyenne Reservoir created by the Sheyenne Dam, 18 miles northeast of New Rockford. The Devils Lake feeder canal will divert water from the Sheyenne Reservoir into Devils Lake. Water not lost by evaporation will be returned to the Sheyenne River via Stump Lake feeder and Stump Lake outlet canals. This flow will furnish supplemental municipal supplies to some 19 towns and cities along the Sheyenne and Red Rivers. The New Rockford unit of 55,000 acres will pump water out of the Sheyenne Reservoir for irrigation.

Two miles above Sheyenne Dam, the James River Canal will divert water to be impounded in Jamestown Reservoir of the Jamestown unit for irrigation of 22,000 acres and also for irrigation of 31,000 acres of Oakes unit, as well as municipal and other use.

Work proposed, fiscal year 1953.—During fiscal year 1953, funds are requested to continue canal, lateral and drainage location surveys for the irrigation facilities. In addition, topographic surveys will be initiated and completed on structure sites and selected irrigable areas. Land use studies will be made and economic studies advanced. The various studies required to be made in cooperation with other agencies, including Fish and Wildlife Service, National Park Service, and the United States Public Health Service, will be well under way.

Montana pumping division, Charley Creek unit, Montana

Description.—Charley Creek unit is one of 10 separate units of the Montana pumping division located along the Missouri River between Fort Peck Dam and the Montana-North Dakota State line. The Charley Creek unit will provide a full water supply for about 800 acres of land.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, volumes I and II of the definite plan report will be completed and preparation of designs will be under way. Funds are requested to continue work on the preparation of designs and specifications.

Montana pumping division, Nickwall unit, Montana

Description.—Nickwall unit is one of 10 separate units of the Montana pumping division located along the Missouri River from Fort Peck Dam to the Montana-North Dakota State line. The facilities of the unit include a river pumping plant and systems of canals, laterals, and drains to serve 2,800 acres of new land.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953 volumes I and II of the definite plan report will have been completed, and funds are requested to continue preparation of designs and specifications.

North Dakota pumping division, Painted Woods unit, North Dakota

Description.—The Painted Woods unit, located near Williston, N. Dak., will provide a full water supply for 4,300 acres of land by means of a main river pumping plant, four relift pumping plants, and a system of canals and laterals.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, preliminary designs, economic studies, and a definite plan report will be completed. Funds are requested to continue repayment negotiations and the settler-assistance program. Design data for the irrigation features will be compiled and final designs will be started.

Power Division, Kaycee unit, Wyoming

Descriptions.—The Kaycee unit consists of about 6,100 acres of inadequately irrigated land and 10,700 acres of new land located along the Powder River. Storage will be provided in the Middle Fork Reservoir site located on the Middle Fork of the Powder River. The feasibility of providing additional water for storage by a diversion from the Red Fork of the Powder River through a canal 1½ miles long is being considered.

Work proposed, fiscal year 1953.—By the beginning of fiscal year 1953, the assembly of preliminary design data, topographic mapping, and geologic, hydro-

logic, and materials surveys will be completed. The program for fiscal year 1953 provides for final assembly, preparation, submission, and approval of the definite plan report. Work on final detailed designs, specifications, and construction drawings will be initiated.

Sandhill Division, Ainsworth unit, Nebraska

Description.—The Ainsworth unit consists of the earth-fill Merritt Dam located on the Snake River in Cherry County, Nebr., approximately 64 miles of main canals, and an extensive distribution system to serve 44,800 acres of irrigable land.

Work proposed, fiscal year 1953.—By the end of fiscal year 1953, preliminary surveys and investigations of the unit will be well advanced. The fiscal year 1953 program provides for the completion of field surveys and investigations necessary for the definite plan report and the assembly and submission of the report during fiscal year 1954.

Yellowstone Division, Colgate unit, Montana

Description.—The Colgate unit includes 1,300 acres of irrigable land now undeveloped, located on the Yellowstone River near Glendive, Mont. Irrigation water will be supplied by pumping from the Yellowstone River.

Work proposed, fiscal year 1953.—The funds requested for fiscal year 1953 will be used to complete the definite plan report and to initiate detailed designs on the pumping plants, canals, and laterals; carry on cooperative studies with local, State, and other Federal agencies; and start repayment negotiations.

Yellowstone Division, Elm Coulee unit, Montana

Description.—The Elm Coulee unit, located on the Yellowstone River near Savage, Mont., will permit for the irrigation of 1,800 acres of new land by pumping from the Yellowstone River.

Work proposed, fiscal year 1953.—Detailed surveys of the pumping plant and canal and foundation explorations at major structure sites will have been completed by the end of fiscal year 1952. The fiscal year 1953 program provides for completion of economic studies and preparation of a definite plan report. Repayment negotiations will be started.

JUSTIFICATION

The fiscal year 1952 obligation program for phase B investigations is $3,101,985. The total obligation program for fiscal year 1953 is estimated at $1,775,837, a reduction of $1,326,148. There will be a reduction in personnel and some investigations will be deferred in the phase B program for fiscal year 1953, as the President's budget provides for continuation only of the most urgent phase B investigations. These phase B studies should continue to ready units for construction which are needed to provide water and hydroelectric power and flood control to maintain the essential civilian economy and in some cases to aid the national defense.

The type of investigations carried out under phase B of the Missouri River Basin project program are essential for the orderly advancement of the various units to the construction stage. They require considerable time for performance as they provide the data necessary for the establishment of a sound definite plan of development for the units. Funds should be provided during fiscal year 1953 to maintain this minimum program to insure an orderly preparation of the units which can be moved into phase A, and thus made ready for construction in future years.

GENERAL STATEMENT

Mr. KIRWAN. Mr. Lineweaver, will you make a statement on phase B please?

Mr. LINEWEAVER. When a general plan for basin development has been established—phase C—it is necessary to perfect and refine the plan for each individual unit to make it ready for construction, by making the detailed studies which are scheduled under phase B. These investigations are required to ready the new units for construction. Construction of these phase B units is needed to provide water and power for deficient areas, and, unless these investigations continue, the units cannot go into construction promptly when funds can be

made available under phase A, which is the construction phase. Phase B investigations cover such work as is required to establish firm plans and estimates and the preparation of a definite plan report.

Definite plan reports are scheduled to be completed for five phase B units in fiscal year 1953 after which final plans and specifications will be undertaken for the initial construction features. The phase B program for fiscal year 1953 will make 13 phase B units ready to move into phase A in fiscal year 1954.

These investigations should not be curtailed but should proceed because these phase B units are the units for which the Bureau is in a position to advance and complete the detailed studies required before actual construction can begin. These units, if made ready for construction, would be in a position to make a major contribution to the maintenance of the essential civilian economy, in the Missouri River Basin, as they would provide new and supplemental irrigation and municipal and industrial water for water-deficient areas and also provide for flood control and other uses.

LOCATION AND PURPOSE OF INVESTIGATIONS

The developments of the Missouri River Basin project are located within the drainage basin of the Missouri River within the States of Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming. Power marketing extends into Iowa, Minnesota, and Missouri.

Phase B investigations of the Missouri River Basin project are performed to develop definite plans for individual units of the project which are being made ready for construction and to set forth an orderly program for the conservation, use, and control of resources of the basin. These studies are programed on a unit basis. They include detailed surveys and preparation of final plans and other preconstruction work which must be undertaken before the unit is ready for the initiation of actual construction.

These investigations consist of such activities as continuing review of and adding to the data collected by previous surveys and investigations, compiling of economic data, detailed land classification, drainage studies, mapping surveys of selected areas, gathering geological data and information at dam sites, establishing pumping-plant locations, field and office studies on dams, canals, power lines, et cetera, preparation of maps, charts, and graphs as required for analysis and report purposes and preparation of firm cost estimates based on current prices. The bringing together of such investigations results in a definite plan for final designs and estimates, issuance of specifications, orderly construction programs, repayment capabilities, and logical operation and maintenance methods.

STATUS OF INVESTIGATIONS AS OF JUNE 30, 1951

At the end of fiscal year 1951 some 28 units were included in the phase B program of investigations, and a number of definite plan reports were under preparation. A number of other units had advanced to phase A (units ready for construction).

WORK UNDER WAY AND PROPOSED

Allotment, fiscal year 1952	$2,889,000	
Prior-year balance available	1,605,322	
Balance available in subsequent year	−1,392,337	
Total obligations, fiscal year 1952		$3,101,985
Allotment, fiscal year 1953	383,500	
Prior-year balance available	1,392,337	
Total obligations, fiscal year 1953		1,775,837

Fiscal year 1952 program, $3,101,985: The program for fiscal year 1952 provides for the continuation of phase B investigation on 28 units of the Missouri River Basin project. Definite plan reports are scheduled for completion for 10 units.

Fiscal year 1953 estimate $1,775,837: The fiscal year 1952 obligation program for phase B is $3,101,985. The President's budget for fiscal year 1953 provides for an obligation program of only $1,775,837. This is reduction of 43 percent. The estimate only provides for a minimum program. There will be a reduction in personnel, and some investigations will be deferred in the phase B program for fiscal year 1953, as the President's budget provides for continuation only of the more urgent phase B investigations.

Investigations of 20 units will be in progress, and definite plan reports are scheduled to be completed for five phase B units in fiscal year 1953, after which final plans and specications will be undertaken for the initial construction features. The phase B program for fiscal year 1953 will make 13 phase B units ready to move into phase A in fiscal year 1954.

These phase B investigations should be continued because these investigations are required to complete detailed land-classification, economic, and engineering analyses for the preparation of definite plans for project units being selected for inclusion in the construction program (phase A) in future years. Construction of these units in phase B is urgently needed to provide water and power for deficient, including defense, areas, and unless these investigations continue the units cannot go into construction promptly when funds can be made available under phase A, which is the construction phase.

Included in the fiscal year 1953 program are seven units in the Bighorn River Basin in Montana and Wyoming which could provide new and supplemental water for irrigation. Investigations will continue for two units in the upper Missouri River Basin above Great Falls, Mont. One of these, the Helena Valley unit, would provide new and supplemental irrigation water for a distress area. The project area includes 21,100 acres near Helena, Mont., part of which is presently inadequately irrigated. The irrigated area of the valley has decreased over the past few years primarily because of the high cost of pumping. The system has deteriorated, and at the present time less than 5,000 acres receive irrigation water by means of pumping, and supplemental water is urgently needed to rehabilitate the existing agricultural economy.

Investigations of five irrigation pumping units along the Missouri and Yellowstone Rivers in Montana and North Dakota will continue, but the completion of phase B investigations of several others will be deferred in fiscal year 1953 because of lack of ample funds.

A definite plan report will be prepared for the Kaycee unit of the Powder division in Wyoming which would provide new and supplemental irrigation water for 16,800 acres. The definite plan report for the Moorhead unit will be completed in fiscal year 1952, and no work is scheduled on this unit in fiscal year 1953 pending clearance of the report with the States of Montana and Wyoming. Investigations of the Piney unit will be deferred, but are scheduled to be resumed in fiscal year 1954.

The investigations of the Devils Lake unit and the large Crosby-Mohall unit of the Missouri-Souris division in North Dakota, and also of the large Oahe unit in South Dakota, will continue. The irrigation of approximately 2,000,000 acres is planned for these units, which are in a semiarid to subhumid area of the northern Great Plains, where irrigation is relatively new and unproven. Thus, the questions which must be resolved and the problems which must be solved in perfecting the definite plans for these phase B units are exceptionally difficult and require careful and complete study and analysis which must extend over several years. One of the most important problems being considered is that of the drainage required with irrigation development.

The definite plan report for the Rapid Valley unit will be completed in fiscal year 1952, but some investigations will be continued in fiscal year 1953 to advance this urgently needed unit as far as possible pending appropriation of construction funds. The principal purposes of the unit are to furnish a full supply of water to Rapid City and to the Rapid City Army Air Base a defense installation to provide a full water supply to 2,200 acres of new land, a supplemental water supply to 12,000 acres of presently irrigated land of the Rapid Valley project, through construction of the Pactola Dam and Reservoir, and other facilities. The Rapid Valley unit would provide a water supply in an area when the demand for additional water for the Rapid City Army Air Base has become exceedingly acute due to its rapid expansion. Wells in this area have not proven to be successful, as it is not only a costly way of obtaining water but the water is of poor quality.

Phase B investigations will be continued for the Farwell and Sargent units of the Middle Loup division in Nebraska and will be initiated for the Ainsworth unit of the Sandhills division on the Niobrara River in the same State. These three units would provide irrigation water for nearly 115,000 acres in an area that has at times been subjected to long periods of droughts. Irrigation of these units will contribute to the stabilization of the immediate as well as the surrounding area. The Sargent unit would provide irrigation water in an area where, for more than a decade, local groups have made determined and repeated attempts to obtain irrigation development, to bolster the present agricultural economy.

The type of investigations carried out under phase B of the Missouri River Basin project program are essential for the orderly advancement of the various units to the construction stage. They require considerable time for performance, as they provide the data necessary for the establishment of a sound definite plan of development for the units. These investigations should not be curtailed but should proceed because these phase B units are the units for which the Bureau is in a position to advance and complete the detailed studies required before

actual construction can begin. These units, if made ready for construction, would be in a position to make a major contribution to the maintenance of the essential civilian economy, and in some cases to the immediate national defense, in the Missouri River Basin as they would provide new and supplemental irrigation and municipal and industrial water for water deficient areas.

DEFINITE PLAN REPORTS

The following are the definite plan reports scheduled for completion in fiscal year 1952:

(The information referred to is as follows:)

DEFINITE PLAN REPORTS SCHEDULED FOR COMPLETION IN FISCAL YEAR 1952

Bighorn Basin division:
1. Bluff unit, Wyoming
2. Hanover unit, Wyoming

Cheyenne division:
3. Rapid Valley unit, South Dakota

Helena-Great Falls division:
4. Helena Valley unit

Middle Loup division:
5. Sargent unit, Nebraska

Montana pumping division:
6. Charley Creek unit
7. Nickwall unit

Powder division:
8. Moorhead Unit, Montana-Wyoming

Yellowstone division:
9. Seven Sisters Unit
10. Stipek Unit

Mr. LINEWEAVER. The following are the definite plan reports scheduled for completion in fiscal year 1953:

(The information referred to is as follows:)

Bighorn Basin division:
1. Bighorn unit, Wyoming
2. Shshone Extensions unit, Wyoming

North Dakota pumping division:
3. Painted Woods unit

Powder division:
Kaycee Unit, Wyoming

Yellowstone division:
5. Colgate unit, Montana

MOORHEAD UNIT, POWDER DIVISION—MONTANA, WYOMING, MISSOURI RIVER BASIN PROJECT

A draft of the definite plan report required prior to initiation of construction on this unit by language included in our recent appropriation acts has been completed in the field and is under review by our regional director in Billings, Mont. It has been recognized that certain revisions of the report will be required and these are under way. It is expected that the report will be ready for submittal to the affected States and to the Commissioner this fiscal year. No funds for this unit are included in the 1953 budget.

Mr. LINEWEAVER. We are now prepared to answer any questions you may have.

Mr. KIRWAN. Are there any questions on phase B?

REQUEST FOR 1953

Mr. JACKSON. You are asking for $2,500,000 for B, C, and D, the way I gather.

On page 505, the amount for phase B is $1,775,837.

Mr. LINEWEAVER. That is the total, including carry-over and new money.

Mr. JACKSON. The phase B work relates to those projects that are in the next-to-the-last stage of preconstruction development?

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. Is that advanced engineering money?

Mr. LINEWEAVER. Advanced planning for the Missouri Basin only.

Mr. JACKSON. I understand. That is your actual design and preparation for construction.

Mr. LINEWEAVER. That is right, sir.

PROJECTS INCLUDED IN PHASE B

Dr. FENTON. How many projects would be included in phase B?

Mr. LINEWEAVER. Twenty-nine units are in the phase B now.

Dr. FENTON. How much money?

Mr. LINEWEAVER. I will have to have that added up for you, Dr. Fenton, and placed in the record.

Do you mean the units in the '53 program in phase B, Dr. Fenton?

Dr. FENTON. You said this includes money for twenty-some projects.

Mr. LINEWEAVER. Advanced planning on 29 units.

Dr. FENTON. Just in phase B?

Mr. LINEWEAVER. Yes, sir. The ultimate cost of those 29 projects, construction costs? I will submit that for the record.

Dr. FENTON. Enumerate them at the same time.

Mr. LINEWEAVER. I have them by individual projects, but do not have them run up in a total.

(The information referred to is as follows:)

Estimated ultimate cost of the 29 Missouri River Basin units shown in the fiscal year 1953 justification for appropriation

Division and unit:	Estimated ultimate cost
Bighorn division:	
Bighorn	$1,441,000
Bluff	555,000
Hanover	2,401,000
Paintrock [1]	1,629,000
Shell Creek	4,782,000
Shoshone extensions	42,666,000
Cheyenne division: Rapid Valley	8,948,000
Helena-Great Falls division: Helena Valley	4,588,000
James division: Oahe	216,108,000
Jefferson division: East bench	20,130,000
Lower Bighorn division: Hardin	11,892,000
Missouri-Souris division:	
Crosby-Mohall	265,953,000
Devils Lake	21,023,000
Montana pumping division:	
Charley Creek	249,000
Nickwall	780,000
North Dakota pumping division:	
Hancock [1]	1,446,000
Painted Woods	1,149,000
Square Butte [1]	395,000
Powder division:	
Kaycee	10,080,000
Piney [1]	2,475,000
Moorhead [1]	25,530,000
Yellowstone division:	
Colgate	449,000
Elm Coulee	495,000
Marsh [1]	1,002,000
Seven Sisters [1]	1,418,000
Stipek [1]	1,616,000
Middle Loup division:	
Farwell	28,519,000
Sargent	11,163,000
Sandhills division: Ainsworth	19,510,700
Total	708,392,700

[1] Phase B units which will not be active in fiscal year 1953.

PHASE C—CONTINUING WORK ON THE GENERAL PLAN OF DEVELOPMENT

Mr. KIRWAN. We will now take up phase C, "Continuing work on the general plan of development."

The allotment for phase C activities for 1952 is $2,833,896 and the estimate for 1953 is $2,061,055.

Pages 521 through 524 of the justification will be placed in the record at this point.

(The pages referred to are as follows:)

Phase C.—Continuing work on the general plan of development

Allotment, fiscal year 1952	$2,833,896	
Prior-year balance available	1,295,180	
Balance available in subsequent year	−267,981	
Total obligations, fiscal year 1952		$3,861,095
Allotment required, fiscal year 1953	$2,061,055	
Prior-year balance available	267,981	
Total obligations, fiscal year 1953		2,329,036

JUSTIFICATION OF ESTIMATE

Location.—The Missouri River Basin project is a planned development of the land and water resources in the Missouri River Basin within the States of Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming. Power marketing also extends into Iowa, Minnesota, and Missouri.

Description.—Phase C investigations of the Missouri River Basin develop the general plan and an orderly program for the best use of the resources of the area. These investigations are programmed generally on a division or subbasin basis.

Units of the comprehensive basin plan are being developed to accomplish the multipurposes of irrigation, power, water for municipal or industrial purposes, navigation, recreation, and flood and sediment control. Some features in the basin have been completed and others are now under construction. It is necessary, however, to continue simultaneously the program of investigations of the general plan of development and to initiate unit investigations from time to time to insure an orderly basin development and the best use of the water resources of the area.

The investigations consist of such activities as continuing review of and additions to the data collected by previous surveys, compiling of current agricultural and economic data, semidetailed or detailed land-classification surveys, topographic surveys of selected areas, preliminary drilling of dam sites, preliminary field location of canals and structures, preparation of maps, charts, and graphs as required for analysis and report purposes, and preparation of preliminary cost estimates. The compilation and preparation of the several division inventories are not retarding the development of plans for the units on which investigations have indicated very desirable characteristics for early construction.

Power studies are made to obtain essential data and to perform work on the long-range planning and programing of the electric generating and transmission facilities of the Missouri River Basin project. By these studies, a determination is made of the economy and adequacy of planned facilities for transmitting wholesale power, for which the Bureau is the marketing agent, from Federal generating plants constructed either by the Bureau or the Corps of Engineers to load centers and project irrigation pumping facilities.

Division or basin studies may continue after individual units in the basin or division have been advanced into preconstruction or construction phases. Division reports will reflect the detail data available for these units, and will cover such units as integral parts of the division plans, along with plans of other units which have not yet advanced to phase A or phase B status. Phase C studies establish the general plan for obtaining optimum benefit from the Missouri River Basin project resources. They are essential background to sound phase B and phase A programs.

Status.—On June 30, 1951, reconnaissance surveys had been completed for nearly all the Missouri River Basin and more refined studies were under way in many areas where reconnaissance surveys showed that additional study was warranted. Work on irrigation aspects of possible developments had been virtually completed in several divisions. Other aspects of a comprehensive resource plan were being studied, by the Bureau or by cooperating local, State, or Federal agencies. These resource development studies are generally based on or geared to basic data made available as a result of the Bureau of Reclamation's work, and often cannot be completed until the irrigation, power, and flood-control requirements have been firmly established. The preparation of several basin and division reports are in progress in fiscal year 1952. The reports on the Lower Platte River Basin, Nebr., will be completed in fiscal year 1952. Studies for others will proceed, with a view toward completing reports on those basins or divisions in the near future.

Work proposed, fiscal year 1953.—The program for fiscal year 1953 provides for the completion of the report on the Niobrara River Basin in Nebraska, South Dakota, and Wyoming. Comprehensive basin studies will be well advanced in the North Platte, South Platte, and Kansas River Basins.

The report on the Cannonball division is scheduled for completion in fiscal year 1953. Irrigation, flood control, power, and municipal water-supply plans for the White division in South Dakota, the Garrison division in North Dakota, the Powder and Tongue divisions in Montana and Wyoming, the Wind division in Wyoming, and the Jefferson division in Montana will be established by the beginning of the fiscal year. Work on these divisions will be concentrated on other resource developments, both by the Bureau and by cooperating groups. Work on the division report drafts will be started. Firm estimates will be

developed, and economic studies will be made. Additional preliminary data will be collected in many other divisions, as background for plans and reports that will be completed in succeeding years. The work accomplished in fiscal year 1953 will make possible the completion of five or six additional reports in fiscal year 1954.

Power-system planning for future power requirements and facilities will continue. Cooperative planning studies will provide for technical assistance by State colleges, universities, and other groups equipped to make specialized studies on the contract basis. The activities of the interior Missouri Basin field committee will continue to be financed with phase C funds.

Justification.—The fiscal year 1952 obligation program for phase C is $3,861,095. The fiscal year 1953 estimate provides for a total obligation program of $2,329,036, a reduction of $1,532,059. This reduction in funds will necessitate a reduction in personnel and some investigations, previously active, will be deferred.

The development of the Missouri River Basin is needed to provide new supplies of water and hydroelectric power, as well as flood control and other services. A large portion of the Missouri River is devoted to strictly agricultural pursuits and is subject to extremes in weather and variations in rainfall. Damaging floods may be followed by long periods of drought causing, as in the 1930's, large population shifts and the kindred waste of natural and human resources. Such disasters seriously affect the Nation's economy—since the basin comprises one-sixth of the Nation's area. Supplemental water is needed to maintain existing irrigation developments; new irrigation is needed because of the hazards of reoccurring droughts; and flood control is needed to protect against severe flood damages. Phase C investigations should continue because the phase C work provides the basic plan for the needed basin-wide development. It sets up the general plan upon which detailed studies and eventual construction are based. It establishes the relation of each unit to its division, and to the Missouri River Basin project as a whole. It provides the framework for the Missouri River Basin development, and is the key to successful development of the basin's many resources. Phase C investigations are a very essential part of the long-range plan of development of the Missouri River Basin project. These investigations provide the information and data necessary for the establishment of a sound over-all plan of development for the basin as well as for the individual units. These investigations permit the selection of those units whose economic feasibility, location, and contribution to the achievements of the goals of basin development warrant their advancement into the preconstruction stage. The phase C program has been closely geared to the rate of progress on units in the construction (phase A) and preconstruction (phase B) stages and funds should be provided during fiscal year 1953 to maintain a minimum program of investigations to insure an orderly continuation of the long-range program for the basin.

GENERAL STATEMENT

Mr. LINEWEAVER. Missouri River Basin project, phase C, involves continuing work on the general plan of developmnet.

Phase C of the Missouri River Basin project is the continuing investigation required on the general plan of development for the Missouri River Basin. A large portion of the Missouri River Basin is devoted to strictly agricultural pursuits and is subject to extremes in weather and variations in rainfall. Damaging floods may be followed by long periods of drought causing, as in the 1930's, large population shifts. Supplemental water is needed to maintain existing irrigation developments; new irrigation is needed because of the hazards of reoccurring droughts; and flood control is needed to protect against severe flood damages. Power developments are needed to supply existing and potential demands.

Investigations of some 29 divisions and basins are scheduled to be continued in fiscal year 1953. The program also includes power-system planning to determine future power requirements and facilities; cooperative planning studies providing for technical assistance by State colleges, universities, and other groups equipped to make

specialized studies; and activities of the interior Missouri Basin field committee.

These investigations are required to continue the studies of the general plan of development to obtain coordinated and comprehensive plans for the several sub-basins and divisions of the basin project. The new problems being encountered in extending reclamation to the Northern Great Plains area make it especially important to continue this work. The general problems, as well as the perfecting of the general physical plans, must be studied and special techniques and adaptations of irrigated agriculture devised for the particular climatical conditions of the Plains.

The Missouri River Basin is a part of the Great Plains that lie between the highly developed Middle Western States and the far West States. The Great Plains, though sparsely populated, yield an abundance of foodstuffs and livestock which are important to the prosperity and economy of the country. The basin also yields valuable and critical minerals and oil. A large portion of the Missouri River Basin is devoted to strictly agricultural pursuits and is subject to extremes in weather and variations in rainfall. Damaging floods may be followed by long periods of drought causing, as in the 1930's, large population shifts and the kindred waste of natural and human resources. Such disasters seriously affect the Nation's economy—since the basin comprises one-sixth of the Nation's area.

Recognizing the urgency and necessity for control and development of the Missouri River Basin, the House of Representatives Committee on Flood Control adopted a resolution in May 1943 requesting the War Department to make recommendations for coordinating flood-control projects along the main stem of the Missouri River. For the same reason, and pursuant to section 9 of the act of Congress of August 1939 (53 Stat. 1187) the Secretary of the Interior recommended projects throughout the Missouri River Basin in Senate Document 191, Seventh-eighth Congress, second session. The comprehensive plan for the basin is the combined report of the Secretaries of War and Interior, coordinated by Senate Document 247, Seventy-eighty Congesss, second session. Before adoption of the comprehensive plan, projects were constructed by Federal, State, or local agencies to meet only the most urgent needs of a locality or a local situation, and were not coordinated or related into a plan to make the maximum use of the water resources. These projects were not integrated or viewed as a part of a general or coordinated basin plan.

Phase C investigations of the Missouri River Basin are required to refine and further develop the general plan and an orderly program for the best use of the resources of the area. These investigations are programed generally on a division or subbasin basis. These phase C studies established the general plan for obtaining optimum benefit from the Missouri River Basin project resources. They are essential background to sound phase B (preconstruction) and phase A (construction) programs.

STATUS OF INVESTIGATIONS AS OF JUNE 30, 1951

On June 30, 1951, reconnaissance surveys had been completed for nearly all the Missouri River Basin and more refined studies were under way in many areas where reconnaissance surveys showed that

additional study was warranted. Work on irrigation aspects of possible developments had been virtually completed in several divisions, and other aspects of a comprehensive resource plan were being studied by the Bureau or by cooperating local, State, or Federal agencies. Division and subbasin plans cannot be completed until the irrigation, power and flood control requirements have been firmly established.

During fiscal year 1951 phase C investigations were under way on some 50 divisions and subbasins of the project. Power studies were being made to obtain essential data and to perform work on the long range planning and programing of the electric generating and transmission facilities of the Missouri River Basin project.

Cooperative planning studies were being made which provided for technical assistance by State colleges, universities, and other groups equipped to make specialized studies on the contract basis. The activities of the Interior Missouri Basin Field Committee also were being financed with phase C funds.

WORK UNDER WAY AND PROPOSED

Allotment, fiscal year 1952	$2, 833, 896
Prior year balance available	1, 295, 180
Balance available in subsequent year	−268, 000
Total obligations, fiscal year 1952	3, 861, 076
Allotment required, fiscal year 1953	2, 061, 055
Prior year balance available	268, 000
Total obligations, fiscal year 1953	2, 329, 055

Fiscal year 1952 program, $3,861,076.—Work is in progress on investigations of 37 divisions, units, and subbasins in fiscal year 1952. Power system planning, cooperative studies with other agencies on technical problems, and the activities of the Interior Missouri Basin Field Committee are continuing.

The preparation of several division and basin reports is in progress. A report on the lower Platte River Basin in Nebraska is scheduled for completion in fiscal year 1952.

Fiscal year 1953 estimate, $2,329,055.—The total obligation program for fiscal year 1952 is $3,861,076, but the President's budget for fiscal year 1953 provides for a total obligation program of only $2,329,055, a reduction of $1,532,021. Since this is a cut of 45 percent, there will be a reduction in personnel and some investigations, previously active, will have to be deferred. The President's fiscal year 1953 budget provides for the continuation of only a minimum program of phase C investigations.

Investigations are scheduled to continue on 29 divisions, units, and subbasins in fiscal year 1953. The program for fiscal year 1953 provides for the completion of the report on the Niobrara River Basin in Nebraska, South Dakota, and Wyoming, and on the Cannonball Division in North Dakota. Comprehensive basin studies will be well advanced in the North Platte, South Platte, and Kansas River Basins. Irrigation, flood control, power, and municipal water-supply plans for the White Division in South Dakota, the Garrison Division in North Dakota, the Powder and Tongue Divisions in Montana and Wyoming, the Wind Division in Wyoming, and the Jefferson Division in Montana will be established by the beginning of the fiscal year.

Work on these divisions will be concentrated on other resource developments, both by the Bureau and by cooperating groups. Work on other reports will be started. Firm estimates will be developed, economic studies will be made, and additional preliminary data will be collected in as background for plans and reports for other divisions that will be completed in succeeding years. The work accomplished in fiscal year 1953 will make possible the completion of five or six additional reports in fiscal year 1954.

Power-system planning to determine future power requirements and facilities will continue. By these studies, a determination is made of the economy and adequacy of planned facilities for transmitting wholesale power, for which the Bureau is the marketing agent, from Federal generating plants constructed either by the Bureau or the Corps of Engineers to load centers and project irrigation-pumping facilities. These investigations consist of such activities as continuing review of and additions to the data collected by previous surveys, compiling of current economic data, semidetailed or detailed land classification surveys, topographic surveys of selected areas, preliminary drilling of dam sites, preliminary field location of canals and structures, preparation of maps, charts, and graphs as required for analysis and report purposes, and preparation of preliminary cost estimates. The compilation and preparation of the several division inventories provides for sound general over-all plans but at the same time does not retard the development of plans for the units on which investigations have indicated very desirable characteristics for early construction.

Cooperative planning studies will provide for technical assistance by State colleges, universities, and other groups equipped to make specialized studies on the contract basis. The activities of the Interior Missouri Basin Field Committee will continue to be financed with phase C funds.

There is a real need to continue with plans for development of the water and related resources of the Missouri River Basin. This development is needed to provide new supplies of water and hydroelectric power, as well as flood control and other services. A large portion of the Missouri River Basin is devoted to strictly agricultural pursuits and is subject to extremes in weather and variations in rainfall. Damaging floods may be followed by long periods of drought causing, as in the 1930's, large population shifts. Supplemental water is needed to maintain existing irrigation developments; new irrigation is needed because of the hazards of reoccurring droughts; and flood control is needed to protect against severe flood damages. Power developments are needed to supply existing and potential demands.

Most of the Missouri River Basin is located in the Northern Great Plains, where the present day inhabitants must cope with the serious problem of erratic rainfall, which generally is insufficient during the growing season and which is so poorly distributed that even in seasons when the total rainfall would be adequate for satisfactory crop production the intervals between rain often are of such length as seriously to impair crop growth. Crop production per acre under dry farming, when compared against that of similar lands under irrigation, is quite low. Dry farming crop failures are common so that the continuing of such practices over a long period becomes a hazardous venture.

Also, in dry years, the livestock industry suffers because of poor range conditions and the deficiency in food to supply a maintenance ration. An adequate water supply, such as could be provided for irrigation, is the only means whereby full productivity of irrigable land can be achieved.

Any candid examination of long-time weather records within the Plains States reveals the inevitableness of recurring drought. All of the numerous scientific studies made, as well as observations by early travelers and explorers, point in the same direction. Most eloquent of all is the testimony of the years of experience on the Plains and of the trends that have been established. Unless steps are taken to reverse or modify these trends by all possible physical means which conserve or add water, the evidence of past years indicates that over a long period of time the tendency toward migration out of the Plains toward crowded labor centers will continue, because of continuing difficult living conditions for a large proportion of the population. Although irrigation is only one of the measures necessary to stability in the Plains, it is the one development which can make the greatest contribution toward the permanent prosperity of this region.

Phase C investigations should continue because the phase C work provides the basic plan for the needed basin-wide development. It sets up the general plan upon which detailed studies and eventual construction are based. It establishes the relation of each unit to its division, and to the Missouri River Basin project as a whole. It provides the framework for the Missouri River Basin development, and is the key to successful development of the Basin's many resources.

Mr. LINEWEAVER. I am now prepared to answer any questions.

Mr. KIRWAN. Are you concentrating on the planning of units which will contribute most to the defense program and flood protection?

Mr. LINEWEAVER. Yes, sir.

PHASES B AND C LESS THAN CURRENT PROGRAM

Mr. KIRWAN. Commissioner Straus told us in his opening statement that the general investigation program would continue at about the same rate as at present. Is this Missouri Basin phases B and C part of the investigation job on a par with the rest of the investigation program?

Mr. LINEWEAVER. No, sir. Let me make this observation. Phases B and C of the Missouri Basin will be at about 40 percent less than the current program under the budget estimates.

PROJECTS BEING CONCENTRATED ON

Mr. JACKSON. Are you concentrating primarily on flood control and power?

Mr. LINEWEAVER. Let me put it this way, Mr. Jackson. Of course, power and water for defense establishments are the major objectives during the defense-program period, but along with that are the advancement of investigations of municipal water, and for irrigation that will go along with the power development and also with the flood control, all of which have been accentuated, as was stated yesterday, by the Missouri and Kansas floods.

FUTURE POWER PRODUCTION

Mr. JACKSON. I wonder if you could have placed in the record a statement as to the amount of power coming in each calendar or fiscal year, with particular reference to schedules B and C?

Mr. LINEWEAVER. Yes, sir; we can do that.

Mr. JACKSON. Let's say for the next 6 or 7 years, a general statement as to what the power additions will be.

Mr. LINEWEAVER. You mean both for the Missouri Basin and the entire Bureau?

Mr. JACKSON. I think primarily for the Missouri Basin and then, if you could put one in for the rest of the country in the proper place in the record, I think it would be helpful.

Mr. LINEWEAVER. All right, sir; we will do that.

(The information requested is as follows:)

Estimated installed capacity of power plants under investigation

[In kilowatts]

Project or unit	Fiscal year—					
	1953	1954	1955	1956	1957	1958
Missouri River Basin:						
Phase B: Powder Division, Moorhead Unit					8,000	
Phase C						
Subtotal, phases B and C					8,000	
Projects authorized but not under construction:						
Minidoka: American Falls power division, Idaho				30,000		
Weber Basin, Utah					5,400	
Yakima: Kennewick Division, Washington				12,000		
Subtotal				42,000	5,400	
Projects not authorized but under investigation:						
Snake River project, Idaho-Oregon:						
Hells Canyon Division						100,000
Moutain Home Division, Scriver Creek power facilities						97,000
Central Valley project (ultimate plan), California:						
Kings River Division, North Fork Kings Unit					125,000	151,000
Sacramento River Division, Sacramento Canal Unit			24,000			
Trinity River Division						141,000
Collbran project, Colorado					7,000	
Colorado River storage project, Green Division, Echo Park Unit, Colorado-Utah						100,000
Lake Dorothy project, Alaska					30,000	
Blue Lake project, Alaska					15,000	
Swan Lake project, Alaska					13,000	
Subtotal			24,000		190,000	589,000
Total			24,000	42,000	203,400	589,000

PHASE D, WORK IN COOPERATION OR IN CONNECTION WITH THE ACTIVITIES OF THE CORPS OF ENGINEERS

Mr. KIRWIN. We will now turn to phase D of the Missouri River Basin project.

The allotment for 1952 is $78,000 and the estimate for 1953 is $55,445.

Pages 529 through 531 will be placed in the record at this point. (The pages referred to are as follows:)

Summarized financial data

Allotment, fiscal year 1952	$78,000
Prior year balance available	34,400
Balance available in subsequent year	−22,555
Total obligations, fiscal year 1952	89,845
Allotment, fiscal year 1953	55,445
Prior year balance available	22,555
Total obligations, fiscal year 1953	78,000

JUSTIFICATION OF ESTIMATE

Location.—Phase D work is carried out throughout the district and regional offices of the Missouri River Basin project. Much of the work is done at cooperative work sessions with members of the Corps of Engineers, either at Bureau of Reclamation or Corps of Engineers offices.

Description.—Perfection of plans to insure the optimum development of irrigation, power, flood control, navigation, and other multiple water-use functions of the Missouri River Basin project requires continued coordination between the Bureau of Reclamation and the Corps of Engineers. This cooperative work is done with phase D funds. It covers comprehensive reservoir-operation studies and power-production studies particularly for the main stream developments. The related activities of storm and flood-control studies, basic hydrologic network operation, runoff forecasting reevaluation of benefits, and cooperative cost allocation work are also important parts of the phase D work.

Status.—Meetings of Bureau of Reclamation and Corps of Engineer employees to discuss problems of mutual interest and concern are held as an integral part of these investigations, and there is a constant interchange of information to keep members of both agencies informed as regards the plans and problems of the other. Studies are initiated on each separate reservoir as investigations are started and proceed in accordance with priorities established on the cooperative programs. Operation agreements are made previous to start of operations. Much time has been spent on continuing cooperative detailed power-production studies of main stem plants with special emphasis on those plants which will be generating power in the next few years. These studies contemplate the best use of the water resource to meet the needs of irrigation, power, municipal supply, navigation, recreation, and other purposes. A joint study has been completed to recheck the sufficiency of the over-all Missouri River Basin water supply. Sedimentation studies have been made, and others are continuing. Storm and flood studies, runoff forecasts and other work of common interest are carried out cooperatively on a continuing basis. Regular meetings have been held with Corps of Engineer representatives to work out and coordinate reevaluation and allocation studies.

Work proposed, fiscal year 1953.—During fiscal year 1953, the Bureau of Reclamation and the Corps of Engineers will continue the cooperative work program that has been well established since the Missouri River Basin project was authorized. Particular emphasis will be placed on studies of, and agreements on, operation of reservoirs that are moving into the operational stage; determination of flood-control capacity and spillway requirements for reservoirs being planned; allocation of flood-control benefits to be assigned to each reservoir; studies of power production at corps-constructed reservoirs; and river regulation problems. Other problems of common interest will be studied cooperatively whenever cooperative action is appropriate.

Justification.—The phase D investigations are a small but a very vital part of the program for the development of the Missouri River Basin. They provide a medium for interchange of technical information and skills between the two primary construction agencies in the Missouri River Basin project, to the end that duplication of costly investigations are avoided and both agencies work toward a common acceptable objective.

Mr. KIRWAN. Do you have a statement for this phase?

Mr. LINEWEAVER. Yes, sir; I will read it.

GENERAL STATEMENT

Since the Missouri River Basin project is authorized as a joint undertaking by the Bureau of Reclamation of the Department of the Interior and the Corps of Engineers of the Department of the Army the perfection of plans to insure the optimum development between irrigation, power, flood control, navigations, and other multiple water uses requires continued coordination between the Bureau of Reclamation and the Corps of Engineers. This cooperative work is scheduled under phase D. It covers comprehensive reservoir operation studies and power production studies particularly for the main stream developments, the related activities of storm and flood-control studies, basic hydrologic network operation, runoff forecasting, reevaluation of benefits, and cost allocation work, etc. There is a continued exchange of information between the Bureau and the Corps of Engineers on these subjects.

The phase D investigations are a very small but very vital part of the program for the development of the Missouri River Basin. These investigations should continue because they provide a medium of interchange of technical information between the two agencies to the end that duplication of costly investigations are prevented and both agencies work toward a common acceptable objective.

LOCATION AND PURPOSE OF INVESTIGATIONS

Phase D work is carried out throughout the district and regional offices of the Missouri River Basin project. Much of the work is done at cooperative work sessions with members of the Corps of Engineers, either at Bureau of Reclamation or Corps of Engineers offices.

Perfection of plans to insure the optimum development of irrigation, power, flood control, navigation, and other multiple water-use functions of the Missouri River Basin project requires continued coordination between the Bureau of Reclamation and the Corps of Engineers. This cooperative work is done with phase D funds. Phase D includes comprehensive reservoir operation studies and power production studies, particularly for the main stream developments, and the related activities of storm and flood-control studies, basic hydrologic network operation, runoff forecasting, reevaluation of benefits, and cooperative cost allocation work.

STATUS OF INVESTIGATIONS AS OF JUNE 30, 1951

Meetings of Bureau of Reclamation and Corps of Engineer employees to discuss problems of mutual interest and concern have been held as an integral part of these investigations, and there is a constant interchange of information to keep members of both agencies informed as regards the plans and problems of the other. Regular meetings have been held with Corps of Engineer representatives to work out and coordinate reevaluation and allocation studies. Studies are initiated on each separate reservoir as investigations are started and proceed in accordance with priorities established on the cooperative programs. Operation agreements are made previous to start of operations. Much time has been spent on continuing cooperative detailed power-production studies of main stem plants with special emphasis on those plants which will be generating power in the near

future. These studies are made to provide for the best use of the water resource to meet the needs of irrigation, power, municipal supply, navigation, recreation, and other purposes. A joint study has been completed to recheck the sufficiency of the over-all Missouri River Basin water supply. Sedimentation studies have been made, and others are continuing. Storm and flood studies, runoff forecasts and other work of common interest are carried out cooperatively on a continuing basis.

Work under way and proposed

Allotment, fiscal year 1952	$78,000
Prior year balance available	34,400
Balance available in subsequent year	−22,555
Total obligations, fiscal year 1952	89,845
Allotment, fiscal year 1953	55,445
Prior year balance available	22,555
Total obligations, fiscal year 1953	78,000

Fiscal year 1952 program—$89,845: The phase D studies in progress are being continued to insure coordination of plans of the Corps of Engineers and the Bureau of Reclamation.

Fiscal year 1953 estimate—$78,000: During fiscal year 1953, the Bureau of Reclamation and the Corps of Engineers will continue the cooperative work program that has been well established since the Missouri River Basin project was authorized. Particular emphasis will be placed on studies of, and agreements on, operation of reservoirs that are moving into the operational stage; determination of flood control capacity and spillway requirements for reservoirs being planned; allocation of flood control benefits to be assigned to each reservoir; studies of power production at corps-constructed reservoirs; and river regulation problems. Other problems of common interest will be studied cooperatively whenever cooperative action is appropriate.

The phase D investigations should continue because they provide a medium for interchange of technical information and skills between the two primary construction agencies in the Missouri River Basin project, to the end that duplication of costly investigations are avoided and both agencies work toward a common, acceptable objective.

OPERATION AGREEMENTS WITH CORPS OF ENGINEERS

Mr. LINEWEAVER. I am prepared to answer any questions.

Mr. KIRWAN. Are you able to work out mutually satisfactory agreements with the Corps of Engineers for the operation of the reservoirs for flood control, irrigation and power production?

Mr. LINEWEAVER. Our field people in region 6 and region 7 are constantly in contact with the division and district engineers of the Corps of Engineers who have charge of the comparable territory, and over the last year have held a tremendous number of conferences looking to the working out of plans not only for the operation, but for the capacity required in the opinion of the corps for flood protection, which is coordinated with our own estimates of requirements of water for irrigation, municipal water, and related purposes.

WORK OF CORPS OF ENGINEERS

Dr. FENTON. Of course, we are pretty well familiar with what the Bureau of Reclamation is doing, but I would like to get acquainted with what the engineers are doing and how they are cooperating in the Missouri Basin in construction with the Bureau of Reclamation. Not being on the Civil Functions Committee, we do not know what is going on, just how much of a job they have.

Mr. LINEWEAVER. We can prepare a statement showing what the cooperation of the Corps and the Bureau people constitutes and the projects that they are working on and those that are under construction, those that are in phase B and C, and submit that for the record, and also show the work of the corps, so far as it has been revealed in previous hearings—summarize that, Dr. Fenton—so as to make a complete story for you.

Dr. FENTON. I would appreciate it.

(The information requested is as follows:)

MAJOR FEATURES IN OPERATION IN FISCAL YEAR 1953

Bureau of Reclamation:
- Angostura Dam and Reservoir, N. Dak.
- Bonny Dam and Reservoir, Colo.
- Cedar Bluff and Reservoir, Kans.
- Dickinson Dam and Reservoir, N. Dak.
- Enders Dam and Reservoir, Nebr.
- Heart Butte Dam and Reservoir, N. Dak.
- Keyhole Dam and Reservoir, Wyo.
- Kortes Dam, power plant and Reservoir, Wyo.
- Medicine Creek Dam and Reservoir, Nebr.
- Shadehill Dam and Reservoir, S. Dak.
- Miscellaneous irrigation works

Corps of Engineers:
- Cherry Creek Dam and Reservoir, Colo.
- Fort Peck Dam, power plant and Reservoir, Mont.
- Kanopolis Dam and Reservoir, Kans.
- Miscellaneous river control works and local flood protection.

MAJOR FEATURES UNDER CONSTRUCTION IN FISCAL YEAR 1953

Bureau of Reclamation:
- Angostura power plant, South Dakota.
- Boysen Dam, power plant and Reservoir, Wyo.
- Canyon Ferry Dam, power plant and Reservoir, Mont.
- Glen Elder Dam and Reservoir, Kans.
- Jamestown Dam and Reservoir, N. Dak.
- Kirwin Dam and Reservoir, Kans.
- Trenton Dam and Swanson Lake, Nebr.
- Miscellaneous irrigation works.

Corps of Engineers:
- Fort Randall Dam, power plant and Reservoir, S. Dak.
- Garrison Dam, power plant and Reservoir, N. Dak.
- Gavins Point Dam, power plant and Reservoir, S. Dak.
- Harlan County Dam and Reservoir, Nebr.
- Oahe Dam, power plant and Reservoir, S. Dak.
- Tuttle Creek Dam and Reservoir, Kans.
- Miscellaneous river control works and local flood protection.

In addition to the above-listed features, there are numerous units now in the preconstruction and investigation stages. Many of these are listed under phases A, B, and C on pages BR–426b, BR–426c, BR–518 through 520 and BR–525 through 528 of part 3, construction and rehabilitation (Missouri River Basin project), "Department of the Interior, justifications for appropriations, fiscal year ending June 30, 1953."

The Corps of Engineers also has dams in the preconstruction and investigation stages. We did not attempt a listing of these because of time limitation in preparation of this submittal. However, if the committee so desires, we will obtain the necessary information from the corps and will in the future submit such a list for the record.

Mr. LINEWEAVER. I have some more information, which goes more into detail as to our cooperation with the corps that I will submit.

(The information referred to is as follows:)

The Pick-Sloan plan under which the programs of the Bureau of Reclamation and the Corps of Engineers in the Missouri River Basin were authorized by the Flood Control Act of 1944 and subsequent legislation divided responsibility between the Bureau and the corps for water resource development work within their spheres of interest. Because each agency was made responsible for major works involving the common functions of flood control, irrigation, navigation, power water supply, river regulation, and other multiple-purpose functions it is essential that close cooperation between the Bureau and the corps be maintained if the over-all objectives of river basin development are to be met.

We believe that a sound workable basis for such cooperation has been established and that accomplishment of work by the Bureau and the corps in the Missouri Basin through cooperation has been standard practice. A major device to insure cooperation has been the establishment of committees or work groups to explore matters of common interest and to obtain agreement on standards and procedures. One of the first of such committees was the steering committee established in 1947, later changed in name to the study committee, composed of field representatives of the Bureau and the corps to formulate and advise on a cooperative program of cost allocation studies for the Missouri River Basin. This group has met 22 times since its inception.

Several other committees have been established to explore solutions to specific problems such as the Adequacy of Flow Committee, the work group on main stem operations, the subcommittee of the Missouri Basin Inter-Agency Committee on reevaluation of Missouri River Basin project and the group concerned with arrangements for operation and disposition of Fort Peck power.

In addition, representatives of each agency attend and utilize opportunities to cooperate at the meetings of other groups such as the Missouri River Basin Inter-Agency Committee, Northern Great Plains Tenure Committee, State soil conservation committees, State reclamation associations, State natural resources commissions, agriculture experiment station irrigation committees, and the Farm Forestry Council.

Each year the Bureau of Reclamation furnishes to the Corps of Engineers copies of programs indicating the cooperative work to be performed by the Bureau and the Corps in connection with dams to be constructed or investigated in the Missouri River Basin. The purpose of such programs is to present a basis for an understanding of priorities, timing, and scope of future cooperative activities, and to provide a record of cooperative activities completed.

The above constitute the major formal channels established to achieve coordination. They are supplemented by the day-to-day exchanges of correspondence, conferences, and other methods of communications. A study of the record over the past 2 years reveals that there have been at least 100 conferences between field representatives of the two agencies and exchanges of more than 1,000 letters, telegrams, and other means of communication. These have concerned such items as flood control, irrigation, and power operations, dam designs, cost allocations, priorities, water-supply studies, reservoir locations and operations, construction activities, review of reports, and many other subjects. Correspondence included in the summary is exclusive of routine items that concern conference dates, reservations, personnel, employment, inspection trips and tours.

The record of cooperation in establishing flood-control regulations for operation of flood-control storage in Bureau reservoirs gives a good illustration of the thoroughness of the cooperation practiced. For all reservoirs operated by the Bureau and having a flood-control function operating regulations are agreed upon between the Bureau and the corps during construction or as soon as possible thereafter. Such regulations provide the general pattern of operation both seasonally and in periods of floods, in order to provide rules to follow to insure that flood control may be carried out most effectively. When such regulations are finally agreed upon, they are published in the Federal Register. They are

then supplemented by working agreements to supplement the regulations by providing for communications for exchange of data and for instructions. The effectiveness of these procedures was proven at the time of the Kansas River floods of 1951 during which period the Kansas River district of the Bureau communicated with the corps 76 times by telephone, telegraph, and letter giving information on precipitation, river stages, reservoir operating data, and general conditions for those areas assigned to the Bureau. A complete up-to-the-minute report on Bureau operations was thus available to the corps at all times.

A fully documented record underlies the above presentation. It is available and indicates clearly that cooperation between the Bureau and the corps in the Missouri River Basin is not merely an attribute of lip-service but rather is a positive working force which is continually being refined and perfected.

PHASE E—OPERATION AND MAINTENANCE

Mr. KIRWAN. We will now turn to phase E—"Operation and maintenance, Missouri River Basin project." This is a new phase.

The proposed allotment for 1953 is $1,000,000 and the water users will advance $12,154 making a total of $1,012,154.

We will insert pages 533 through 542 in the record.

(The pages referred to are as follows:)

Summarized financial data

Allotment, fiscal year 1953:	
Irrigation	$303,900
Power	696,100
Funds advanced by water users	12,154
Total obligations, fiscal year 1953	1,012,154

JUSTIFICATION OF ESTIMATE

Location.—The developments of the Missouri River Basin project are located within the drainage basin of the Missouri River in the States of Montana, Wyoming, Colorado, North Dakota, South Dakota, Nebraska, and Kansas.

General conditions.—Construction of selected units and divisions of the Missouri River Basin project has been in progress since 1947. As units, or parts of units, reach functional completion they are placed in operation to allow residents of the area to receive the benefits of the development at the earliest possible date and to initiate return to the Government on the reimbursable portion of its investment in project works. Current repayment of operation and maintenance costs and eventual repayment of the reimbursable allocation of construction costs is obtained through water service and repayment contracts with water-users' organizations and by sale of power to preference customers.

The funds requested under this heading are for the operation and maintenance of the completed joint irrigation and power facilities of 13 units and divisions of the Missouri River Basin project described hereinafter:

Bostwick division, Nebraska-Kansas, $113,965: The Bostwick division is a multiple-purpose unit involving irrigation, flood control, and other benefits. Two storage dams will be constructed. The Harlan County Dam is under construction by the Corps of Engineers. When project operation is started, releases of irrigation water will be made to the division upon requests made to the Corps of Engineers. Lovewell Dam is proposed for construction by the Bureau of Reclamation and will provide regulatory storage for the Courtland canal and prevent waste of water. Ultimate development will provide for the irrigation of approximately 28,000 acres in Nebraska and 61,390 in Kansas.

The Nebraska Bostwick irrigation district was formed on April 20, 1948, and negotiated a repayment contract with the Government February 21, 1949, for the construction of a system to deliver water to approximately 28,000 acres of land. On September 25, 1948, the Kansas Bostwick irrigation district No. 2 was formed and contract negotiations are still in progress. Funds requested herein are for the maintenance of diversion dam and carriage systems and the operation and maintenance of the diversion dam. Under the terms of the repayment contracts, the irrigation districts will operate the carriage systems.

Boysen division, Boysen unit, Wyoming, $90,000: The Boysen power plant will have two generating units with an installed capacity of 15,000 kilowatts. Anticipated load growth indicates that the entire capacity of the Boysen power plant, although nearly equal to the existing generator capacity in the area, will be absorbed within a year after initial operation.

Estimated annual net generation for this plant is 72,000,000 Kilowatt-hour and the estimated annual revenue is $300,000. Annual power sales cannot be estimated until a market area is established either by making the Big Horn district one interconnected system, or by assigning parts of the present Shoshone and Riverton project market areas to Missouri River Basin project. Funds requested herein are for the operation and maintenance of the Boysen power plant.

Cheyenne division, Angostura unit, South Dakota, $28,100: This multiple-purpose project consists of a dam and reservoir, irrigation system, and hydroelectric power plant. The dam was completed in fiscal year 1950, with a total reservoir storage capacity of 160,000 acre-feet, which includes 68,000 acre-feet of dead or silt storage and 92,000 acre-feet of active storage, but not 60,000 acre-feet of superstorage. The irrigation system presently under construction will supply water to approximately 12,150 acres of irrigable land. The Angostura power plant will have an installed capacity of 1,200 kilowatts and will be designed for semiautomatic operation. Present construction activities will be concluded in September 1951. Except for minor use in the plant, dam, and caretakers houses, the entire output of the plant will be sold to the Black Hills Power & Light Co. on a withdrawable basis under contract No. 179r–1760.

A water users contract was signed May 29, 1951, wherein the irrigation district agrees to repay the entire cost of the distribution works over a period of 40 years and to partially pay for the costs of the supply works during the same period. Funds requested herein are for the operation and maintenance of the irrigation storage system, distribution system, and drainage system, and for the operation and maintenance of the Angostura power plant.

Cheyenne division, Keyhole unit, Wyoming, $5,000: The Keyhole unit will be a multiple-purpose development providing flood protection and pollution abatement along the Belle Fourche River in Wyoming and South Dakota, a supplemental water supply to stabilize diversions to the existing Belle Fourche project in South Dakota, and a source of municipal water for the city of Belle Fourche, S. Dak. The principal feature of the Keyhole unit is the dam and reservoir with a total storage capacity (exclusive of 288,400 acre-feet of superstorage) of 340,000 acre-feet. This amount includes 70,000 acre-feet of silt storage, 130,000 acre-feet of irrigation storage, and 140,000 acre-feet of flood storage. Flood control operation will be automatic as the dam is designed with an uncontrolled overflow type spillway.

No irrigation distribution facilities will be constructed as a part of the Keyhole unit. Water will be held in the Keyhole Reservoir until the supply in the Belle Fourche Reservoir becomes low; then be released from Keyhole to replenish the supply in the Belle Fourche Reservoir and allow continued irrigation on the 55,708 acres of land of the Belle Fourche irrigation project. Municipal water will be supplied to the municipality of Belle Fourche. Negotiations for a repayment contract with the Belle Fourche irrigation district and the municipality of Belle Fourche are in progress. Funds requested herein are for the operation and maintenance of the Keyhole Dam and Reservoir.

Frenchman-Cambridge division, Nebraska, $114,732: The division is a multiple-purpose project involving irrigation, flood control, and other benefits. Three storage dams will be constructed (two of which are completed), and necessitate operation and maintenance in fiscal year 1953. Ultimate development will provide for the irrigation of 68,570 acres, of which approximately 12,000 acres will receive a supplemental water supply.

The Frenchman-Cambridge irrigation district was formed in April 1946 and has negotiated a repayment contract with the Government for the reimbursable construction cost for 40,000 acres of land. The additional land will have to be covered by other irrigation districts and contracts. In 1947 water users under the Meeker canal petitioned the Bureau of Reclamation to rehabilitate their canal and provide satisfactory water service on a temporary basis until newly constructed features in the Frenchman-Cambridge irrigation district could serve their lands. The ditch was acquired by the Government and previous to fiscal year 1953 it has been operated with funds appropriated for operation and maintenance during construction. The system has been rehabilitated on a temporary basis and will provide satisfactory delivery to 3,200 acres in fiscal year 1953. Storage water in Enders Reservoir is available for diversion in fiscal year 1952. Previously the system was dependent on stream flow. Funds requested herein are for the operation and maintenance of the irrigation storage system and carriage system.

Grand division, Shadehill unit, South Dakota, $5,100: This multiple-purpose reservoir provides flood and silt control for the Grand River. The Standing Rock Indian Reservation will derive general benefits from the project. The primary purpose of the unit is the impoundment of water for irrigation, flood and silt control. Feasibility studies are in progress to determine the benefits involved using the water for municipal purposes in Lemmon, S. Dak. The total reservoir capacity, 358,000 acre-feet, is composed of 58,000 acre-feet for dead storage and silt control, 84,000 acre-feet for municipal water and irrigation, and 216,000 acre-feet for flood control; exclusive of 109,000 acre-feet of superstorage. The superstorage capacity has been made large in order to reduce the emergency spillway costs and increase the flood protection. The provision of municipal water for Lemmon, S. Dak., will require the construction of a pumping plant at the reservoir and a pipeline from the reservoir to Lemmon. Construction of the carriage, distribution, and drainage systems has been postponed pending quality of water studies on the Grand River. Negotiations with the water users for a repayment contract are in the preliminary stage, dependent upon results of water studies. Funds requested herein are for the operation and maintenance of the storage system.

Heart division, Dickinson unit, North Dakota, $3,000: Dickinson Dam, completed in 1950, provides for irrigation of 915 acres, municipal water for the city of Dickinson, and release of water for pollution abatement downstream from the dam. The reservoir has a storage capacity of 25,700 acre-feet, including 9,200 acre-feet of superstorage, and of which 18,700 acre-feet are for handling flood flows. Normal conservation storage is 4,000 acre-feet, of which 1,100 acre-feet are for municipal water supply for the city of Dickinson.

A repayment contract has been negotiated with the city of Dickinson.

Funds requested herein are for the operation and maintenance of Dickinson Dam.

Heart division, Heart Butte unit, North Dakota, $11,000: Heart Butte Dam on the Heart River 15 miles south of Glen Ullin, completed in 1949, was built to store water for the irrigation of 13,100 acres of land lying downstream in the Heart River Valley. The reservoir has a capacity of 426,000 acre-feet, of which 350,500 acre-feet are reserved for the control of floods, while the remainder is available for silt control and irrigation of project lands. Water will be lifted from the river to the irrigable tracts by means of a series of pumping plants.

The land is fertile and with the use of irrigation water a marked increase in the production of crops is anticipated, especially during recurring dry years. Assured crop yields will stabilize the agricultural economy of the area. A slight population increase is forecast.

Provision for repayment of the irrigation portion of the construction cost is covered by a proposed contract now being negotiated with the Heart River irrigation district. Funds requested herein are for the operation and maintenance of the storage system, carriage system, and distribution system.

North Dakota pumping division, Fort Clark unit, North Dakota, $3,100: The irrigable land totaling 2,100 acres of river bottom land and first bench land is fertile and under irrigation should assist in stabilizing the agriculture of the area where recurring droughts have seriously retarded development. Water is lifted from the Missouri River by means of pumps. Two relift pumping plants are required to reach portions of the project area. A slight increase in population is anticipated after full development.

Provision for repayment of irrigation portion of the construction cost is covered by a contract with the Fort Clark irrigation district. Funds requested herein are for the operation and maintenance of the carriage system and pumping plants, the distribution system, and the drainage system.

Smoky Hill division, Cedar Bluff unit, Kansas, $21,897: The Cedar Bluff Dam is being constructed and will be completed and in operation and maintenance status in fiscal year 1953. The reservoir capacity of 373,850 acre-feet will provide water for some 11,500 acres of farm land, and its operation will be coordinated with downstream reservoirs for flood control purposes. Funds requested herein are for the operation and maintenance of the Cedar Bluff Dam and Reservoir irrigation storage system.

Upper Republican division, St. Francis unit, Colorado-Kansas, $17,260: This unit consists primarily of the 175,000 acre-foot Bonny Dam flood control and storage reservoir which is constructed and will necessitate operation and maintenance in fiscal year 1953. Funds requested herein are for the operation and maintenance of Bonny Dam irrigation storage system.

Oregon Trail division, Kortes unit, Wyoming, $144,000: The Kortes power plant was constructed to develop critically needed power within the Missouri River Basin area. It is interconnected by transmission lines with the Colorado-

Big Thompson and Kendrick projects which allows energy interchange to assist in meeting the needs of the area.

First operation of the unit as a separate entity receiving revenue from the sale of power began at the start of fiscal year 1951 at which time one 12,000 kilowatt unit was in service. Since that time two more units have been placed in operation making up a total plant capacity of 36,000 kilowatts. Funds requested herein are for the operation and maintenance of the power plant and for the purchase of power.

Transmission division, $455,000: The Bureau of Reclamation is responsible for the operation and maintenance of power transmission facilities which it will construct in the Missouri River Basin area to interconnect and coordinate the operation of other Government power plants. The transmission network, integrating plants of the Missouri River Basin, Colorado-Big Thompson, Riverton, Shoshone, North Platte, and Kendrick projects, as well as power plants of the Army Corps of Engineers at main-stem flood control projects, will carry a dependable supply of power to irrigation pumping units, construction jobs, municipalities, cooperatives, and private utilities.

The interconnected system of lines and substations ultimately will be capable of marketing an estimated 10,478,000 kilowatt-hours of electric energy annually from 25 power plants, the combined production capacity of which will approximate 2,300,000 kilowatts to wholesale customers who will pay annually over $45,000,000 in gross power revenues.

Work proposed, 1953

	Program, fiscal year 1953	Increase (+) or decrease (−) from fiscal year 1952
IRRIGATION FACILITIES		
Storage system: For the normal operation and maintenance of 10 storage dams and reservoirs. Increase is due to initial year of operation and maintenance	$76,745	+$76,745
Carriage system: Normal operation and maintenance of the completed carriage facilities of 4 units or divisions. Increase is due to initial year of operation and maintenance	143,729	+143,729
Distribution system: Normal operation and maintenance of the completed distribution facilities of 4 units or divisions due to initial year of operation and maintenance	37,120	+37,120
Drainage system: Normal operation and maintenance of the completed drainage facilities of 2 units or divisions. Increase due to initial year of operation and maintenance	960	960
Replacements and improvements: For the purchase of equipment items and facilities necessary to the performance of an economical yet adequate operation and maintenance program. Items included are the replacement or acquisition of 3 tractors with related equipment, 6 trucks, 2 jeeps, 1 concrete mixer, 1 chattin ditcher, and several other nonrecurring items of a minor nature	54,500	+54,500
Total obligations, irrigation	313,054	+313,054
MUNICIPAL WATER FACILITIES		
Storage system: For normal operation and maintenance of the completed municipal water facilities of 1 unit. Increase due to initial year of operation and maintenance. Total obligations, municipal water supply	3,000	+3,000
POWER FACILITIES		
Electric generation: For normal operation and maintenance of Boysen Dam and power plant, Kortes Dam and power plant, and Angostura power plant. The power plants have a combined generating capacity of 42,200 kilowatts. Increase due to initial year of operation and maintenance	228,900	+228,900
Other production expense: For purchase of power. Increase due to initial year of operation and maintenance	100,000	+100,000
Transmission and distribution expense: For the normal operation and maintenance of the transmission and distribution system comprising some 2,450 miles of transmission lines and related transforming and switching facilities	541,100	+541,100
Replacements and improvements: For the purchase of equipment items and other facilities necessary to the performance of an adequate program of operation and maintenance. Major items included are: 1 truck, 3 stall garages, spare generator coils, and line maintenance and testing equipment	45,500	+45,500
Subtotal power	915,500	+915,500
Project energy interchange (net)	−219,400	219,400
Total obligations—power	696,100	+696,100
Total obligations—all facilities	1,012,154	+1,012,154

Schedule of program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year 1951 (2)	Program current year 1952 (3)	Program budget year 1953 (4)
Irrigation facilities:			
Operation and maintenance:			
Storage system			$76,745
Carriage system			143,729
Distribution system			37,120
Drainage system			960
Replacements and improvements			54,500
Total obligation, irrigation			313,054
Municipal water supply facilities: Operation and maintenance storage system, total obligations			3,000
Power facilities:			
Operation and maintenance:			
Electric generation			228,900
Other production expense			100,000
Transmission and distribution expense			541,100
Replacements and improvements			45,500
Subtotal, power			915,500
Project energy interchange (net)			−219,400
Total obligations, power			696,100
Total obligations, all facilities			1,012,154
Method of financing:			
Allotment required			1,000,000
Funds advanced by water users			12,154

Mr. KIRWAN. Please explain this new phase which is being presented to the committee for the first time.

GENERAL STATEMENT

Mr. LINEWEAVER. I have a brief statement and will be prepared to answer any questions at the conclusion of that statement. Also after I have made that statement I would like for Mr. McPhail to submit an estimate on the consolidation of power facilities of Riverton, Shoshone, Kendrick, Colorado-Big Thompson, and Missouri River Basin projects, which is not dealth with in the phase E estimate.

This item (phase E) is in the estimates for the first time. We have felt that the operation and maintenance of the Missouri River Basin projects should be gotten into one place and not continued directly as a part of the construction funds of each project. That is the reason that we have separated this out and presented it so as to show what each project requires for operation and maintenance in one place.

Up to the present time, operation and maintenance of all completed or partially completed, units of the Missouri River Basin project has been financed as O. and M. during construction. Beginning with fiscal year 1953, it is proposed to finance the operation and maintenance of these completed units as a separate phase of the total project. Funds requested for phase E, Missouri River Basin project, in the amount of $1,000,000, with the addition of $12,154 of water-user-advanced funds, will provide for the minimum requirements for the operation and maintenance of irrigation facilities on nine projects, municipal water supply facilities on one project, and power facilities on three projects and the transmission division. Current repayment of operation and maintenance costs will be obtained through water serv-

ice and repayment contracts with water users' organizations and by sale of power to preference customers.

A total of $316,054 is programed for operation and maintenance of the irrigation and municipal water supply facilities of 10 completed or partially completed units of the Missouri River Basin project during fiscal year 1953. This is an increase of $67,630 over the amount programed for this work in the current fiscal year as O. and M. during construction. The increase is required because of additional structures and facilities that will have been completed and transferred to the O. and M. program by the beginning of fiscal year 1953.

This request also covers the requirements for operation and maintenance of the power production and transmission facilities of the Missouri River Basin project. These power features, in general, are interconnected with other Bureau projects, Kendrick, North Platte, Colorado-Big Thompson, Riverton, Shoshone, and Fort Peck, to form widespread systems covering portions of six States.

They consist of two power plants, Kortes in Wyoming and Angostura in South Dakota, now in operation, and Boysen in Wyoming, which is scheduled for operation late in fiscal year 1952. Transmission facilities consist of approximately 560 miles of high-voltage line in the Wyoming-Colorado-Nebraska area with substations for the wholesale delivery of power to the population centers of Casper, Lusk, and Pine Bluffs, Wyo., and Gering, Sidney, and Alliance, Nebr., and to REA's in the adjacent rural areas; approximately 1,500 miles of transmission line in North and South Dakota, with substations at load centers, which will be operated mainly under temporary lease arrangements to transmit power from the Fort Peck power plant, from a cooperative generating plant near Voltaire, N. Dak., and from privately owned utilities at several points in the area, to rural cooperatives in order to alleviate power shortages which have developed (later these transmission facilities will be used to market power from the main-stem Missouri River plants now under construction by the Army Corps of Engineers); and approximately 250 miles of high-voltage transmission lines and substations in the Montana-North Wyoming area, mainly for marketing power from the Boysen power plant.

PHASE E COVERED IN REPAYMENT CONTRACTS

Mr. KIRWAN. Are the costs of operation and maintenance for this phase returned to the Government in the same manner as in other areas of reclamation activity?

Mr. LINEWEAVER. Yes, sir. The irrigation pays its part of it. Power pays its part. The irrigation part is $303,900. The power operation and maintenance is $696,100. The funds advanced by water users is $12,154.

There is one phase of this that has not been allocated or fixed by law. That is the operation and maintenance attributable to flood-control activities. That is a matter we now have under investigation so as to make recommendations to the Congress.

DESCRPTION OF VARIOUS PHASES

Mr. NORRELL. Mr. Commissioner, in years gone by you have placed in the record information about which I am going to ask, but

I think it may be a good idea to ask at this time. I wish you would state briefly the difference between phases A, B, C, D, and E.

Mr. LINEWEAVER. Briefly, phase A projects are those units that are in the construction stage, have been placed there by the Congress and authorized in previous sessions, or are recommended in this year's budget for the first time. Most of these projects have been recommended by the Bureau and the President to be placed in phase A. Occasionally the Congress itself has moved these projects into phase A. But all of those are in what might be termed the construction stage. Phase B are units of the Missouri Basin projects that are in the advanced planning stage, being prepared for construction. The field investigations generally have been completed or are nearing completion. The chief engineer is engaged in the preliminary design work and, as these investigations and advanced planning are completed, we recommend them for advancement to phase A.

Mr. NORRELL. Then they move into phase A.?

Mr. LINEWEAVER. Yes, sir.

Phase C is the general plan of development which covers the remaining units of the Missouri Basin, which were authorized in Senate Document 191, which was approved in the Flood Control Act of 1944. Because of the paucity of funds for this purpose the number of units that are being investigated under phase C is being held by force of necessity to the minimum and, as these projects are brought to a head, so to speak, they are then placed in phase B on the road to phase A for the construction stage.

Phase D is cooperation with the Corps of Engineers, which as you recall, the Flood Control Act of 1944 authorized or approved in the coordinated plan for the development of the Missouri Basin project by the Corps of Engineers and the Bureau of Reclamation.

Mr. NORRELL. Do I understand that that phase would include what you might term the "partnership projects"?

Mr. LINEWEAVER. That is cooperation, not necessarily partnership projects, Mr. Norrell.

The $78,000 in this estimate represents where the corps would be called upon to do work for us in that respect.

Mr. NORRELL. Could there be any units in phase D that might be equal in progress of investigation.

Mr. LINEWEAVER. There are no units as such set up in phase D. That is a convenience method that has been approved by the Appropriations Committee since 1945 as a means for pinpointing the funds that are used directly for cooperation with the Corps of Engineers.

Mr. NORRELL. Now, the last phase, which I understand, is E.

Mr. LINEWEAVER. Phase E appears in the budget this year for the first time separated out as operation and maintenance of units in the Missouri Basin, including the transmission lines.

TOTAL COST OF ALL PROJECTS

Mr. NORRELL. Do you have any estimates of what the total amount of construction of all projects in these phases would be?

Mr. LINEWEAVER. Yes, sir.

Mr. NORRELL. I know those costs will go up and down depending upon conditions.

Mr. LINEWEAVER. The total cost of all projects in the Missouri Basin, reclamation phase, is now outlined as $3,126,429,000, as of September 1951.

Mr. NORRELL. That does not mean that this amount will not be increased by probable additional projects in the years to come?

Mr. LINEWEAVER. That is true, sir, nor will it be not subject to increase or decrease as a result of fluctuations.

Mr. NORRELL. Increased or decreased as the case may be.

Mr. LINEWEAVER. The Missouri Basin is a 25- to 50-year program.

REQUEST FOR PLANNING

Mr. NORRELL. What is your total amount of planning money in the Missouri Basin?

Mr. LINEWEAVER. For this year?

Mr. NORRELL. For this year, especially, yes.

Mr. LINEWEAVER. The total amount of phase B and C money is $2,500,000, which, as I said, will result in a reduction in the program of planning in the Missouri Basin.

ALLOTMENTS FOR PHASES B AND C, 1952 AND 1953

I would like to submit, sir, a brief statement showing the 1953 allotments and program for phases B and C together with the amount available for 1952.

Mr. NORRELL. All right, if it is agreeable to the chairman.

Mr. KIRWAN. Please insert it in the record.

(The statement referred to is as follows:)

Fiscal year 1952:	
Allotments	$8, 830, 000
Programed	7, 147, 000
Present rate	[1] 6, 600, 000
Allotment	8, 830, 000
Program	7, 147, 000
Estimated carry-over	1, 683, 000
Comparison of the 1952 program with the proposed 1953 program:	
Appropriation	[2] $2, 500, 000
Estimated carry-over	1, 683, 000
Maximum possible program	[2] 4, 183, 000
For fiscal year 1953:	
This is $2,964,000 less than 1952 program, a reduction of 41 percent.	
This is $2,417,000 less than present rate, a reduction of 37 percent.	

[1] Based upon actual expenditures for first 6 months.
[2] Approximate.

AMOUNT REQUESTED FOR PLANNING IN OTHER PROJECTS

Mr. NORRELL. What is your total planning money in your other reclamation projects for this fiscal year, this coming fiscal year?

Mr. LINEWEAVER. The estimate is $5 million, sir.

Mr. NORRELL. In addition to that do you have any planning money coming out of the reclamation funds?

Mr. LINEWEAVER. That is included in that $5,000,000.

Mr. NORRELL. That includes both the reclamation funds and fund from the Treasury?

Mr. LINEWEAVER. The amount coming out of the general fund of the Treasury (most of that $5 million would come out of the reclamation funds) is about $300,000. The rest of it comes out of the reclamation funds.

Mr. NORRELL. That gives us, then, for the total planning money for the next fiscal year for reclamation of about $7,500,000.

Mr. LINEWEAVER. Yes, sir; including the reduced funds in the Missouri Basin.

Mr. NORRELL. That is all planning money?

Mr. LINEWEAVER. Yes, sir. May I reemphasize that that is a substantial reduction so far as the Missouri Basin is concerned from the present year.

Mr. NORRELL. I realize that.

OPERATION AND MAINTENANCE EXPENSE INCLUDED IN CONSTRUCTION APPROPRIATION

Mr. JACKSON. You do not have anything set up separate and apart from phase E in the Missouri Basin which is referred to as the operation and maintenance expense?

Mr. LINEWEAVER. Only those projects where the operation and maintenance is incidental to construction, where a project hasn't quite reached the stage——

Mr. JACKSON. From a bookkeeping point of view, you are mixing in operation and maintenance with construction in the budget. We are on the subject of construction and you are tying in operation and maintenance, all in the one category.

MISSOURI RIVER BASIN PROJECT CONSIDERED AS AN ENTITY

Mr. LINEWEAVER. That is due to the fact, Mr. Jackson, that the Missouri Basin project is set up as an entity, as if it were made up of divisions of projects like the Yakima project, which has four or five divisions. Because of the set-up that was approved by the Congress in 1944, we have continued to handle the Missouri Basin project in line with the authorization in the Flood Control Act of 1944, which keeps it in one place instead of scattering it.

Mr. JACKSON. The Grand Coulee project is all one project, but isn't the operation and maintenance separate from construction?

Mr. LINEWEAVER. Yes; it is.

Mr. JACKSON. That is why I am a little confused as to the distinction in the two situations.

Mr. LINEWEAVER. I may just say that the matter has been studied and we have discussed it with the Budget Bureau and the Budget Bureau has discussed with us the desirability of separating out the operation and maintenance of the Missouri Basin project and placing the operation and maintenance in the regular operation and maintenance fund. We requested the Bureau of the Budget to defer that this year, at least for another year, so we could give it further study and probably come up with a well-considered plan than we were able to do at this time.

Mr. JACKSON. I don't know that it makes a lot of difference, but I am just not clear in my mind why operation and maintenance is separate in one large project and treated as an entity in another.

Mr. LINEWEAVER. You may want to consider this: That the Missouri Basin project extends from the Continental Divide in western Montana clear down through Kansas. In fact, the area that it covers is almost equal to the remainder of the ten or twelve Western States. We are operating it as a unified project, and we have not as yet reached the stage that we felt we could present a well-considered program for separating operation and maintenance out of the construction funds.

Mr. JACKSON. I don't think it makes a great deal of difference. I was just curious to get the reasoning, if any, that distinguishes the two approaches.

Mr. LINEWEAVER. There is justification for question about it.

REQUEST FOR GENERAL INVESTIGATIONS

Mr. FENTON. I notice in your general investigations you are asking for an over-all appropriation of $5 million.

Mr. LINEWEAVER. Yes, sir.

Mr. FENTON. And you break that down to $300,000 for general funds and $4,200,000 for reclamation funds.

Mr. LINEWEAVER. And $500,000 from the Colorado River development fund which comes out of the Colorado River Dam fund. That is counterbalanced by revenues from the Hoover Dam.

SEGREGATION OF FUNDS AS TO SOURCE

Mr. FENTON. Of course, you break down the other items likewise. Just what is the idea of breaking those down that way?

Mr. LINEWEAVER. You mean as to where the funds come from?

Mr. FENTON. Yes.

Mr. LINEWEAVER. Basically the reclamation fund is designed to be the source of funds for general investigation. As the reclamation fund does not receive any revenue from Alaska, the Alaska allocation of $300,000 is therefore coming from the general fund, on the same basis which the Congress has heretofore approved for Alaska development planning.

I beg your pardon. There is $250,000 for Alaska and $50,000 for the Arkansas-White-Red Basin investigation. That $50,000 would be expended outside the 17 western States which are the source of revenues for the reclamation fund.

Mr. FENTON. The $500,000 is for the State of Colorado.

Mr. LINEWEAVER. No, sir. That is a Colorado River development fund which is provided for under the Boulder Canyon Adjustment Act of 1939. That authorizes the use of Colorado River development funds for planning or general investigative purposes in the Colorado River Basin. That is financed from revenues that are paid into the Treasury from the Hoover Dam—our revenues.

Mr. FENTON. Those revenues from the Hoover Dam are paid into the general treasury?

Mr. LINEWEAVER. Yes, sir.

Mr. FENTON. Then you get it reappropriated back?

Mr. LINEWEAVER. That is right, sir. They must be reappropriated every year.

Mr. FENTON. The same thing applies to the construction and rehabilitation item as to why there are those different breakdowns.

Mr. LINEWEAVER. The $145,565,000 from the general fund is appropriated generally to projects of a larger nature, like the Columbia Basin, Central Valley, Davis Dam, Missouri Basin. That type of project has been financed for years from the general fund. The reclamation fund has been drawn on to finance generally smaller projects which are primarily irrigation projects.

Over the years the Appropriations Committees have exercised the jurisdiction generally as to what projects should be financed from the general fund and what should be financed from the reclamation fund.

Mr. FENTON. Irrigation generally comes from reclamation?

Mr. LINEWEAVER. Where a project is primarily irrigation, it would come generally out of the reclamation fund, although, in some instances, it comes out of general funds.

Mr. FENTON. Those figures are arrived at by a survey that has been made and you know what projects are coming up?

Mr. LINEWEAVER. Yes, sir; and an analysis of the type of project.

Mr. FENTON. All right. Thank you.

Mr. LINEWEAVER. I would like to point out that the information that you request, Dr. Fenton, has been placed in the record under general investigations by Mr. Dixon, in answer to questions, and I will not repeat them here.

Mr. KIRWAN. All right.

SUMMARY OF PLANNING AND SURVEYS, DEPARTMENT OF INTERIOR

Mr. NORRELL. I would like to have summed up what we were trying to do a while ago regarding the investigative and planning money. What I am trying to get clear in the record, Mr. Commissioner, is this: The total planning money of the Interior Department and the Bureau of Reclamation, which is a part of the Interior Department, for the next fiscal year, including everything—Alaska and everything else—summing up the total planning money.

Mr. LINEWEAVER. All right, sir. We will provide that dealing with the Bureau and will cooperate with Mr. Beasley in presenting it for the entire Department.

(The information requested is as follows:)

Estimates for 1953 and appropriations for 1952 for plans and surveys (including detailed plans and specifications)

	Appropriated 1952	Estimate 1953
Office of the Secretary:		
Power and energy studies, New England and New York power studies		$50,000
Construction, Southeastern Power Administration: New construction and additions		90,000
Construction, Southwestern Power Administration: New construction and additions	$50,000	100,000
Total, Office of the Secretary	50,000	240,000
Bonneville Power Administration: Construction: New construction	110,000	100,000
Bureau of Land Management: Management of lands and resources: Land classification	50,000	153,000
Bureau of Indian Affairs: Construction:		
Buildings and utilities	164,650	252,100
Roads and trails	22,650	32,500
Irrigation systems	146,000	141,000
Total, Bureau of Indian Affairs	333,300	425,600
Bureau of Reclamation:		
General investigations	4,500,000	5,000,000
Reclamation fund	3,810,000	4,200,000
General fund	190,000	300,000
Colorado River development fund	500,000	500,000
Construction and rehabilitation	10,975,896	7,500,000
Total, Bureau of Reclamation	15,475,896	12,500,000
Bureau of Mines: Conservation and development of mineral resources:		
Fuels: Coal	160,300	82,270
Minerals and metals: Mineral research, unclassified	270,000	520,220
Total, Bureau of Mines	430,300	602,490
National Park Service:		
Management and protection: Park and recreation programs	285,997	395,200
Construction	475,030	694,585
Parkways	177,625	385,675
Roads and trails	130,260	128,310
Buildings and utilities	167,145	180,600
Total, National Park Service	761,027	1,089,785
Fish and Wildlife Service:		
Management and resources: River basin studies	243,759	318,250
Office of Territories:		
Construction of roads, Alaska: Preparation of plans	300,000	300,000
Alaska public works: Construction	261,480	766,000
Virgin Islands public works: Construction	36,540	98,680
Total, Office of Territories	598,020	1,164,680
Grand total	18,052,302	16,593,805

CONSOLIDATION OF POWER FACILITIES OF RIVERTON, SHOSHONE, KENDRICK, COLORADO-BIG THOMPSON AND MISSOURI RIVER BASIN PROJECTS

Mr. McPHAIL. I have a statement here that I would like to read into the record for the information of the committee. It describes the procedure which the Bureau proposes to institute at the beginning of the fiscal year in connection with the consolidation of power facilities of Riverton, Shoshone, Kendrick, Colorado-Big Thompson and Missouri River Basin projects, which we think is a move toward efficiency and economy.

The Bureau of Reclamation now has five separate projects operating in Colorado, Wyoming, and western Nebraska, each with its own power system, which are now capable of being completely coordinated

and integrated. One of these, the Missouri River Basin project, which is the newest project, is a far more comprehensive project than the others and operates not only in the States mentioned but in all of the States which physically in part or in whole, lie in the basin.

Each of these projects was independently authorized and considered as separate operating and financial entities. The power systems have long been interconnected and closely integrated. Likewise the individual power generation and transmission facilities are so intermingled and coordinated that segregation and separation of operating activities in many cases have been more fiction than fact. The Kortes power plant for example is legally a facility of the Missouri River Basin project. All of its power, however, must flow out over lines of the Kendrick project, which also transmits the Kendrick project energy from the Kendrick project's Seminoe power plant. At Casper, however, the situation changes for the line from Casper east to Gering is a Missouri Basin project line. Also at Thermopolis is intermingling of facilities and merging of power and energy of the various projects occurs in many other places as indicated on the map.

Because of the concept of separate project entities, complicated and confusing project records of operating costs, operating revenues, interproject sales and purchases of power, separate project power billings, and appropriations, have been kept with considerable overlapping and duplication of expense. As the irrigation and power activities of the projects are increasing, the arbitrary segregation by project of the power activities (which must of necessity be integrated) become more and more impractical and burdensome, so that consolidation of power operations is necessary without further delay.

Therefore, in the interest of greater economy, efficiency, and reliability of operation, it is decided administratively, that power operations of the five projects will be consolidated starting July 1952 and one project shall be designated to act as power operating and marketing agency for all of the projects. The Missouri River Basin project will be designated as the power operating and marketing agent.

Under the single power operating and marketing agency procedure, the system will be one consolidated integrated system over which power and energy will flow without regard to project boundary lines. Power operation maintenance and marketing responsibilities for each region will be administered by the Regional Directors of the respective regions.

In such a consolidated operation, no accounting for sale to or purchase by individual projects of power from another project, will be made. Sale of power to the consolidated power system customers or purchase of power from outside suppliers to the consolidated power system will be for the account of the operating agent and not from or by individual projects. The Missouri River Basin project operating as agent for all the projects, will make all new power sales or purchase contracts and renew any contracts, which are now in force with individual projects, as they expire. Since power operations and maintenance and power marketing activities for all power facilities will be conducted and accounted for on a consolidated power system basis, no summary accounting by individual projects for such activities will be necessary.

Likewise, all power revenues will be accounted for on a consolidated power system basis and the individual projects will be credited for

their share of the net revenues on an equitable basis. Postage stamp power rate schedules will be in effect over the consolidated power systems in Wyoming, Colorado, and western Nebraska where this system will operate.

One power O. & M. budget will take the place of the five project power O. & M. budgets now in effect.

Since the present concept of individual operating and financially separate projects involves large investments already made, such investments at this time will continue to be considered as project investments. Any future new or supplemental works constructed within the physical boundaries of the Missouri River Basin will be considered as part of the Missouri River Basin project rather than the individual projects. Betterments of existing facilities (such as an existing powerplant or substation) will continue to be considered as investments of the present projects.

The results of the consolidated power operations will be very beneficial in that, for operational, marketing, budgeting, and accounting purposes there will be one large consolidated power system rather than five artificially limited systems which, even now are physically integrated. By such simplification greatly improved economy, efficiency and reliability of operations can be accomplished and arbitrary and unrealistic division by projects, of power costs and revenues will be replaced by the consolidated system operation. Such simplification will make power operations, marketing, budgeting, and cost and revenue accounting less costly and more realistic.

OTHER DEPARTMENTAL AGENCIES, MISSOURI RIVER BASIN PROJECT

Mr. KIRWAN. We will take up the item for other departmental agencies, Missouri River Basin project.

The net allotment for other Interior agencies for 1952 is $5,000,000. The allotment for 1953 is $5,000,000.

Please insert in the record the pertinent portions of pages 544 through 563.

(The pages referred to are as follows:)

BUREAU OF LAND MANAGEMENT

Summarized financial data

Total obligations to June 30, 1951	$2,045,856
Allotment, fiscal year 1952	325,000
Prior year unobligated balance	67,935
Total obligations, fiscal year 1952	392,935
Allotment, fiscal year 1953	325,000
Total obligations, fiscal year 1953	325,000

JUSTIFICATION OF ESTIMATE

Land classification, estimate, fiscal year 1953, $139,000.—Under the Missouri Basin program of the Department, 7½ million acres of a total of about 19 million acres of public lands administered by the Bureau of Land Management in Missouri Basin have been covered by detailed land classification. It is essential that this classification proceed to completion concurrently with other departmental investigation of land and water resources, to permit an effective and well-integrated departmental program. In the past, land and mineral resources have received comparatively little attention as compared with the water resources. It is necessary to the entire program that the land investigations (land classi-

fication) be brought into and kept at a proper balance with other investigations. The departmental basin program schedule calls for the classification of 2 to 3 million acres each year to complete the job by 1957. The estimate of $139,000 is necessary to keep the program up to this schedule.

Cadastral survey, estimate, fiscal year 1953, $186,000.—The appropriation for cadastral surveys and resurveys on the Missouri River Basin project is for the purpose of surveying public land lines and the reestablishment with iron corner monuments all section and quarter-section corners on land scheduled for irrigation or development by the Bureau of Reclamation and other governmental agencies, and for the acquisition of rights-of-way for reservoirs to be constructed in the basin. The reestablishment of these original corner positions and the definite identification of section and property lines are required by the Bureau of Reclamation and other governmental agencies to determine land boundaries, actual acreages, and furnish a horizontal control survey net in connection with each project. The reestablishment of these corners is necessary because a large percentage of them have been lost or obliterated since the original survey was made some 60 to 80 years ago, and the lack of definite corners and boundaries is retarding the development of the area. Farmers and stockmen are particularly insistent that these land boundaries be defined so they may construct improvement with assurance that they are on the land intended.

The Bureau of Land Management now has firm requests from the Bureau of Reclamation for resurveys and remonumentation of section corners on 940,000 acres of project lands during fiscal year 1953. This work is needed to complete preliminary planning by the Bureau of Reclamation for the construction of canals, reservoirs, laterals, and the laying out of farm units. These resurveys will be made in Montana, Wyoming, South Dakota, and Nebraska as follows:

	Acres	Amount
Montana	16,000	$8,750
Wyoming	46,000	23,000
South Dakota	300,000	67,000
Nebraska	189,000	65,000
North Dakota	35,000	22,250
Total	586,000	186,000

Bureau of Mines

Summarized financial data

Total obligations to June 30, 1951	$865,213
Allotment, fiscal year 1952	150,000
Prior year balance available	24,783
Total obligations, fiscal year 1952	174,783
Allotment, fiscal year 1953	150,000
Total obligations, fiscal year 1953	150,000

JUSTIFICATION OF ESTIMATE

While utilization of a variety of raw mineral commodities in the Missouri River Basin await solution of technological problems before development is feasible, changes in local economy, facilities, and other factors, attributable to benefits from current or planned land and water development projects, will have a profound effect on the mineral industry potentialities of the Basin. The functions of the Bureau of Mines in the Missouri Basin project continue to be concerned chiefly with the development and presentation of factual data on the existence and utilization of mineral commodities necessary to planning for full and effective resources development.

Studies are specifically scheduled to furnish data within the areas of reasonable influence of authorized and planned water development projects. Studies completed, under way, and planned gain comprehensive information on all mineral resources and include inventories and evaluation of past, present, and future utilization and potentialities, and mineral industry requirements in water and power.

The criteria determining the scope of Bureau of Mines investigations are limited to (*a*) the activity has broad significance to a large segment of the Missouri River Basin and little direct significance to outside areas; (*b*) investigations emphasize development of statistical and economic data required to set forth instances where mineral resources are enhanced or burdened by land and water development projects; (*c*) demonstrations of processes or techniques developed by the Bureau of Mines where such have major significance to basin commodities, but little elsewhere; (*d*) where the activity is directly connected with advancing some construction phase of the Missouri Basin project as conducted by one of the other agencies.

Fish and Wildlife Service

Summarized financial data

Total obligations to June 30, 1951	$2,022,677
Allotment, fiscal year 1952	400,000
Prior year balance available	86,617
Total obligations, fiscal year 1952	486,617
Allotment, fiscal year 1953	400,000
Total obligations, fiscal year 1953	400,000

Justification of estimate

In 1946 the Congress enacted the amended Coordination Act (60 Stat. 1080) in which it provided, among other things, that whenever the waters of any stream or other body of water are authorized to be impounded, diverted, or otherwise controlled for any purpose by any agency of the United States, that agency should consult with the Fish and Wildlife Service and the appropriate State fish and game conservation agency for the purpose of preventing loss of and damage to fish and wildlife resources.

The Missouri Basin project, now being planned and constructed by the Bureau of Reclamation and the Corps of Engineers, is a water-resources development project designed primarily to provide for flood control, irrigation, and hydropower production in that basin. As authorized by Public Law 732, the Fish and Wildlife Service proposes to work with these two agencies to the end that the Missouri Basin project is constructed with a minimum of damage to fish and wildlife resources and, wherever practicable and consistent with the primary purpose of project units, take steps to improve hunting and fishing in connection with the construction of individual features of the project. The Fish and Wildlife Service has similar responsibilities with respect to minor power projects licensed by the Federal Power Commission, and the drainage, flood retardation, and soil erosion prevention program of the Department of Agriculture to the Missouri River Basin.

In order to carry out this activity effectively, the Service is periodically furnished with the project-planning schedules of the construction agencies. Following receipt of such information, the Service makes inventories of fish and wildlife resources in the project areas, studies the projects in detail, and determines to what extent the projects would damage or benefit fish and game. Where it is found that damages would be substantial, possibilities for modifying the project are discussed with the construction agency. Project plans can often be modified so as to reduce damages to or increase fish and wildlife resources with minor cost to the project, particularly if project studies are in the early planning stages. The Service works with the construction agency to assist in bringing about the added benefits. In all of these activities the Service works closely with the appropriate State game and fish departments.

The Service activities outlined above involve many diverse studies, such as the effects of irrigated agriculture on various forms of wildlife; the effect of reduced stream flows on both warm and cold water fisheries and fur animals; the effect of agricultural drainage projects on waterfowl; the effect of large reservoirs on the displacement of big game such as elk and deer and the normal migrations of such animals; the value of fish and wildlife resources to the economy of local communities and the States; the economic and recreational value of fish and game in relation to regional and national needs; requirements for new Federal or State wildlife refuges and fish hatcheries as they may be needed to complement the construction of water resources projects planned by other agencies, and many others.

GEOLOGICAL SURVEY

Summarized financial data

Total obligations to June 30, 1951	$16,697,001
Allotment, fiscal year 1952	3,500,000
Prior year balance available	344,888
Total obligations, fiscal year 1952	3,844,888
Allotment, fiscal year 1953	3,500,000
Total obligations, fiscal year 1953	3,500,000

JUSTIFICATION OF ESTIMATE

Ever since the Missouri River Basin project was started several years ago, the collection, analysis, and interpretation of basic data on the water, land, and mineral resources of the basin, and the preparation of topographic and geologic maps and reports by the Geological Survey have lagged behind the planning and construction activities of the action agencies of the Government for the development and use of those resources. It would have been decidedly advantageous, and in the interest of over-all efficiency and economy, if the basic data program of the Survey could have been started 5 or 10 years before the planning work of the action agencies instead of coincidentally with them. That would have prevented serious handicaps and delays in the development work.

Under the prospective funds for fiscal year 1952, the basic data program will have to be reduced about 28 percent under the 1951 rate. Although the construction program of the action agencies may have to be curtailed drastically during fiscal year 1953 under the present international emergency, and even their planning programs reduced somewhat, the basic-data program of the Geological Survey should be carried on at an adequate scale. This would narrow the disparity between the supply and the demand for the basic data that are so essential for the sound planning and efficient construction and operation of the development works.

Although the Missouri River Basin program of the Geological Survey was originally designed for the primary purpose of providing basic data essential to the development of the water, land, and mineral resources of the basin, the information so obtained also contributes substantially to bolstering the national economy during the present emergency. The information has proved to be very useful in furthering industrial mobilization and stimulating the production of civilian and military supplies that are so vital to the national defense program.

Topographic surveys and mapping, estimate, $2,050,000.—Topographic maps present a symbolized portrayal of the natural and man-made features existing upon the land surface. They afford a representation of drainage and of the relief to be encountered in the particular areas, and delineate the roads, railroads, dwellings, and other cultural details of the locality. Adequate topographic mapping is a prerequisite and an indispensable adjunct to the general planning and preconstruction studies which occur in the early states of programs for the utilization of land and water resources. Topographic maps, therefore, are essential in the progressive development of the Missouri River Basin.

The need for mapping in connection with the development program for the basin is further accentuated by the fact that the greatest lack of map coverage is in the regions where most of the proposed projects are located. An expanding mapping program is urgently needed to provide the basic information so vital to economical progress in the development of the Missouri River Basin for irrigation, flood control, hydroelectric power, water supply, navigation, and industry. The topographic maps must be made available at the earliest possible date, in order to eliminate the need for many special surveys and assure a substantial reduction in the cost of the entire basin program.

During fiscal years 1952 and 1953, topographic mapping operations are planned for a total of 26 projects in nine States. This program represents the primary and urgent mapping requirements of the two construction agencies, the Bureau of Reclamation and the Corps of Engineers. Field surveys and office compilation will proceed rapidly on all the projects already under way. Mapping on some projects is just beginning so that the basic step of obtaining aerial photography is in progress or is yet to be accomplished.

Extensive field operations to maintain support of the office stereomapping capacity are planned for the summer period in order to take advantage of favorable climatic conditions The summer work will be supplemented by winter field

activity as far north as economically feasible. Vigorous prosecution of this expanded program will be required to provide the topographic maps needed prior to development of basin resources.

Geologic and mineral resources surveys and mapping, estimate, $360,000.—The program of geologic mapping and mineral resource investigations has been coordinated with the other agencies of the Department of the Interior. To provide adequate basic data on the nature of the earth materials, at and below the surface of the ground, in areas where construction is planned or is in progress and in areas where mineral resources are known to occur or unknown mineral resources may occur, and to provide adequate inventories of these mineral resources, studies are planned (1) in and near construction areas where development is planned by the Bureau of Reclamation; (2) in mineral resource areas whose development will contribute to the welfare of the basin, and in support of Bureau of Mines investigations in such areas; (3) in areas of public lands and Indian reservations where appraisal of mineral resources and accurate knowledge of their occurrence and distribution are needed to stimulate their development; and (4) in other areas where basic geologic data pertaining to construction problems and mineral resources are needed by other agencies.

Engineering and general geology: Geologic investigations and mapping to determine surface and bedrock conditions and sources of construction materials must be continued throughout the basin, but at an accelerated rate to keep pace with construction plans and operations of the Bureau of Reclamation and other Federal, State, and local agencies. Geologic investigations and mapping to obtain additional basic data on the nature of the glacial deposits that blanket extensive areas of development in the basin, to obtain additional basic data for soils studies, and to explore the areas in which unknown resources may be found, must be continued, but more rapidly to expedite the accumulation of basic data bearing on these fundamentally important problems.

Fuels and mineral resources: Geological investigations and mapping to determine the occurrence and distribution of fuel and mineral resources throughout the Basin must be continued, but at an accelerated rate in order that adequate data soon may be obtained on which to base a sound program for their conservation and development. Such work is particularly urgent in and near areas where construction already is planned. Preparation of preliminary summary appraisals of all mineral resources, in some instances by states, should be initiated or expanded to provide a sound basis for current planning of Federal, State, and local agencies. The vital roles of coal, oil, and gas, in the development and economic welfare of the Basin are increasingly apparent. As data on these fuel resources are quite inadequate, investigations and exploration must be continued as rapidly as possible. Similarly, as data on both non-metallic and metallic mineral resources are fragmentary, investigations of known reserves of these resources must be continued, with emphasis at present on phosphate rock, bentonite, chromite, and certain pegmatite minerals, but without neglecting other mineral resources; and search for new reserves must be pressed.

Water resources investigations, estimate, $981,500.—Adequate information upon the quantity and distribution of the surface-water supplies, the occurrence and availability of ground waters, and the sediment loads of the streams, is indispensable for planning, constructing, and operating all types of works for the development and utilization of the water resources of the Missouri River Basin. An indication of the great unfilled need for such basic data is the recent action of the group of representatives of the Bureau of Reclamation and nine other action agencies of the Government, who, after a joint study of the needs of those agencies, recommended that the Geological Survey construct and operate 615 additional stream-gaging stations in the Missouri River Basin. In order to meet these needs only in part, and to supply other requests by the action agencies for other types of basic water data, will require the Geological Survey to carry on the following water investigational program during fiscal year 1953.

Surface-water investigations: Continuing the approximately 280 present stream-gaging stations and the 10 stations expected to be installed during fiscal year 1952. Compiling, analyzing, and assembling surface-water facts in order to make them the most useful and applicable in the development of the Missouri River Basin.

Sediment investigations: Continuing the investigations of the sediment loads of streams at the approximately 110 stations in the present program, with the 7 new stations expected to be installed during fiscal year 1952. Also special studies of the causes and sources of erosion and of the aggradation or degradation of stream beds and banks.

Chemical quality investigations: Continuing the investigations for determining the chemical quality of the water of streams at about 115 present stations, together with the 10 new stations expected to be installed during fiscal year 1952. Also studies of the chemical quality of ground waters at about 50 reclamation projects or other locations in the basin.

Ground water investigations: Continuing the present investigations in the locality of about 50 projects of the Bureau of Reclamation and other action agencies of the Government. Only general investigations are now being made although more detailed and comprehensive investigations are needed.

General administration, estimate, $108,500.—The general administration of the Geological Survey is financed partly by direct appropriation and partly by assessment against funds made available from other Federal agencies. The current rate of such assessment is 3.1 percent and this percentage has been applied to the total estimate of $3,500,000 for Survey participation in the Missouri River Basin program.

National Park Service

Summarized financial data

Total obligations to June 30, 1951	$1,215,970
Allotment, fiscal year 1952	300,000
Prior year balance available	189,990
Total obligations, fiscal year 1952	489,990
Allotment, fiscal year 1953	300,000
Total obligations, fiscal year 1953	300,000

JUSTIFICATION OF ESTIMATE

This estimate of $300,000 will provide for continuation, on a reduced basis, of the basin-wide survey, and continuation of the recreational studies, and historic and prehistoric archeological surveys, salvage and excavations on the Missouri River Basin at reservoir sites where the early completion of dams is scheduled.

Recreational surveys and planning $135,000.—The work scheduled for reclamation projects for the fiscal year 1953 involves recreational reconnaissance surveys and reports on four major river basins in Montana, Wyoming, and Colorado. Investigations on individual units and reservoirs are scheduled on 8 to 10 projects. Development plans and planning reports will have to be initiated and/or completed on from 9 to 12 reservoir areas which will include layouts on areas for public use, organized group camping and seasonal home sites. In addition, a large amount of recreational construction has been scheduled for which detailed construction drawings and specifications will be required.

Basin-wide survey.—Continuation of the basin-wide surveys is of utmost importance to recreational planning in the Missouri River Basin. Careful study and analysis of recreational needs and facilities within the basin as a whole might well reveal other sites where developments could be made to better advantage. The lack of a comprehensive, integrated plan for the entire basin makes it impossible to assure that the funds expended for planning for individual projects are used to the best advantage. Under a piecemeal procedure there is always danger that developments placed at a reservoir without regard to the needs of a wide area may prove to be less useful than similar developments at a better location which might be discovered later. Conversely, it might be found that deficiencies would be created by neglecting a large section. These facts have been recognized from the outset of the Missouri River Basin recreation survey, but the pressure of work for individual projects has been so great that the limited personnel available have been unable to initiate a basin-wide survey on a scale to accomplish the desired results.

Historical and archeological surveys and salvage, $165,000.—An urgent and important phase of water control projects is the investigation, appraisal and recording of archeological and historic sites, structures, and objects in reservoirs, and salvage of remains where warranted.

Prehistoric man selected his home sites along the rivers which gave ease of transportation and more fertile soil for raising crops. It is estimated that 80 percent of the scientific records pertaining to prehistoric man in the Missouri Basin are in the river vallys. These will be flooded out in many cases. The magnitude and urgency of the task is evident from the fact the completion of only three dams Fort Randall, Oahe, and Garrison, will result in the total disappearance of the

Missouri River as we know it for a distance of 400 to 600 miles. In addition to archeological studies needed on the main stem of the Missouri, archeological surveys are needed on the North Platte, Niobrara, Tongue, Powder, Wind and other tributaries of the Missouri River on which dams are being built.

Likewise surveys of historic sites are needed as many of these sites are invaluable landmarks of the white man's advance across the American Continent. The white man, like his predecessor, used the river for exploration and settlement, consequently, the Lewis and Clark sites, fur trading posts, military forts and early settlements are along rivers and in many cases will be inundated by dam construction. It is proposed to make historical and archeological surveys in 22 reservoirs in the fiscal year 1953. Of these, four are situated in Montana, two in North Dakota, three in Wyoming, three in Colorado, four in Kansas, four in Nebraska, and two in South Dakota.

On the basis of surveys made as outlined above, a limited number (not in excess of 10 percent) of the archeological sites are selected for excavation and salvage of irreplaceable archeological materials. With regard to the historical phases of the work, important pioneer structures such as the Old Wheeler Courthouse, and the Lower Brule Agency building in Fort Randall Reservoir; the Oahe Chapel: and the St. Calvary Baptist Mission on Oahe Reservoir, the Sacred Heart and Congregational Missions; Old Fort Berthold Agency, and the Ree Ceremonial House in Garrison Reservoir; and St. Joseph's Church and Canyon Ferry Village in Canyon Ferry Reservoir will be measured and photographed before they are inundated. The Harney Cabin will be relocated and some historic sites, such as Fort Recovery and Fort Stevenson, will be excavated to obtain additional historical data.

During the 1953 fiscal year it is proposed to excavate and preserve unique materials which will otherwise be permanently lost from the following reservoirs:

Jamestown, N. Dak	$7,000
Clark Canyon, Mont	18,000
Glendo, Wyo	8,000
Garrison, N. Dak	25,000
Oahe, S. Dak	75,000
Fort Randall, S. Dak	16,600
Miscellaneous reservoirs	15,400
Total	165,000

The Smithsonian Institution, under a cooperative agreement with the National Park Service, does much of the field work. State scientific institutions have recognized the need for and urgency of carrying forward this work promptly and have supplied funds, equipment and personnel. During the 1951 fiscal year research contracts were made with the North Dakota and Nebraska State Historical Societies, Nebraska State Museum, the Universities of Nebraska, Kansas South Dakota, Montana, and Wyoming. The scientific importance and public interest of the work is widely recognized in the Missouri Valley.

In view of the magnitude of the task, both Federal and much State assistance as can be obtained is needed to carry forward the program in advance of flooding dates.

Bureau of Indian Affairs

Summarized financial data

Total obligations to June 30, 1951	$1,507,000
Allotment, fiscal year 1952	325,000
Prior year balance available	83,208
Total obligations, fiscal year 1952	408,208
Allotment, fiscal year 1953	325,000
Total obligations, fiscal year 1953	325,000

JUSTIFICATION OF ESTIMATE

Within the limits of the Missouri River Basin are located 20 Indian reservations and Indian Bureau establishments embracing 14,500,000 acres of Indian-owned land. Nearly 70,000 Indian people live on these lands. The Missouri Basin development program not only directly affects large areas of these lands, but contains elements which will influence the social and political development of the

Indian people. Thus, in discharging its responsibilities to the Indians, the Indian Bureau is deeply involved in this fast-moving program. Up to the present time in its attempt to keep abreast of the widespread activities, the Indian Bureau has been forced to direct most of its efforts to the protection of Indian interests in property. The importance of such protection has sometimes been overlooked or not understood in the job of getting the program under way. While some progress has been made in studying the effect of the program on Indian economy and social organization, a great deal remains to be accomplished in the field of preparing the Indians for active participation in the whole of the development program. However, in the field of protection of Indian property interests much progress has been made, not only in the accomplishment of the objective, but in arousing in the Indians a consciousness of their rights and obligations and the necessity of their intelligent help in handling these affairs. While the degree of response to this challenge has not been uniform by any means, it is encouraging to note that more of the Indians and Indian tribes have turned away from an attitude of apathy and helpless resistance to an interest in participation in, and utilization of, their share of the potential benefits of the Missouri Basin program.

To carry on its part in the limited program, the Bureau of Indian Affairs will require an allotment of $325,000 for the fiscal year 1953. The detailed statement of the estimate which follows is divided into five parts:

1. *Work relating to the program of the Bureau of Reclamation.*—Activities relating to the Bureau of Reclamation are concerned largely with the facilitation of that program where Indian interests are involved. A pronounced stimulus is given by the Missouri River Basin plan to the development of irrigation of Indian lands in two principal ways:

(*a*) By reason of the location of Indian lands within the boundaries of Bureau of Reclamation project units, for example, the location of 22,500 acres of lands owned by the Crow Indians within the boundaries of the Hardin-Yellowtail unit.

(*b*) By reason of the improvement of the water supply of Indian Bureau projects caused by the construction of Bureau of Reclamation projects; for example, the Wind River project which can receive supplemental water for 55,000 acres and a supply for 52,000 acres of new land upon completion of proposed storage and distribution systems.

The effect of the Indian Bureau's participation in the Bureau of Reclamation's program for development of irrigation facilities is summarized in the following table:

State	Estimate of Indian-owned lands benefited	
	New acres to be irrigated	Improvement, water supply for existing acres under constructed works
Montana	89,800	24,100
North Dakota	14,000	
South Dakota	52,700	
Wyoming	63,000	42,200

Additional duties of the Indian Bureau include assistance in the resolution of conflicts where they arise, the dissemination of information regarding the program among the Indian people whose interests are affected, the evaluation of damage to Indian interests, and the actual carrying out of certain parts of the reclamation program which the Indian Bureau is best prepared to undertake because of its background and relation to the Indians.

2. *Work relating to the program of the Corps of Engineers.*—These programs are almost entirely damaging to Indian property and society with few immediate offsetting benefits. The proposed reservoirs will occupy substantial areas of land owned by Indians within their reservations and which, of course, embrace the bottom lands along the Missouri main stem and the lower reaches of its tributaries—lands which are the most useful parts of the reservation in terms of the Indian's day-to-day economy and life.

The removal from the areas to be inundated of the Indian people with their improvements and personal effects and their establishment and reorganization

combined with their need for guidance and help in the protection of their real property interests impose upon the Indian Bureau responsibilities and efforts far beyond normal scope of activity. In addition, there is involved the reestablishment of cemeteries, roads, and communications, schools, medical services, and other facilities destroyed by the creation of these reservoirs. However, these activities are direct and specific contributions to the total job of developing large-scale projects of this kind.

3. *Work relating to the program of the Bureau of Indian Affairs.*—Land and water resources development studies for Indian reservations not presently included in, but relating to, the Missouri Basin devlopment plan:

Under this item the Bureau undertakes the study of the development and utilization of Indian-owned land and other resources. On a majority of the Indian reservations and establishments of the Missouri Basin, this work, while not directly related to projects of the basin plan, nevertheless, is an integral part of that plan because of the effect of the program upon the area adjacent to it. The establishment of an irrigation project within a region previously devoted entirely to grazing not only changes the existing situation of the area included in the project but also that of the entire region. Similarly, the inundation by a reservoir of bottom lands previously used for farming and ranching necessitates moving these operations to the uplands which previously were used for grazing purposes, consequently, there arises in both land use and economies, a readjustment problem involving an area far greater than that occupied by the project itself.

The adjustments required of the Indian families affected by these developments involve not only the reestablishment of existing means of livelihood in new locations but often the development of new skills and the adaptation of social environments different from those to which the Indians have been accustomed.

In addition to study and planning in the foregoing matters, the Bureau, on behalf of the Indian and conformable to the broader interpretation of the objectives of Missouri River Basin development program, is undertaking the inventory of all of the resources of these reservations and is exploring the potentialities of their development. The results of this inventory will be the basis for acquainting the Indian people with the value of their assets and the methods for utilizing them for the improvement of their situation. Included in this inventory is an intensive survey of existing Indian Bureau irrigation projects to evaluate their effectiveness, develop adequate drainage, improve the efficiency of distribution systems, and estimate the cost of completing or extending the canals in order that the widest possible water coverage to arable lands may be obtained. For example, improvements planned for the Blackfeet irrigation system will supply water to 70,000 acres of new land.

This phase of the work involves not only the programs of the Bureau of Reclamation and the Corps of Engineers, but those of the Department of Agriculture; for example, assistance to agriculture, flood control, soil and moisture conservation, forestry programs, and other similar activities are related to functions of the Department of Agriculture. Also, the programs of the States and counties in which the reservations lie are affected. In fact, the plans of each of these agencies are affected and modified by the Missouri Basin program and have in turn an effect upon the Indian, his property, and his means of livelihoood.

4. *Action program, Bureau of Indian Affairs in connection with the Corps of Engineers.*—Under this item the Bureau of Indian Affairs is involved in the physical relocation and rehabilitation of Indian individuals and groups with their tangible goods made necessary by the taking of Indian-owned lands for reservoir purposes and for other rights-of-way. Requirements of this activity include interpretation and application of land-use capabilities in connection with relocation of Indian people and assistance to Indian people in the conservation and use of land resources remaining available to them after the reservoir taking. Included also are requirements for adjustments in agency facilities such as schools, roads, communication facilities, etc.

BUREAU OF LAND MANAGEMENT

Mr. LINEWEAVER. The first is the Bureau of Land Management. Two classes of work that are indispensable to the Missouri River Basin project are land classification and cadastral surveys. This work is carried on by the Bureau of Land Management and appro-

priation of $325,000 is requested for fiscal year 1953 for these purposes. This is the same amount as is available in fiscal year 1952.

Land classification is necessary to provide data with respect to development, management, use, and disposition of the remaining unreserved public lands within the Missouri River Basin project. It is essential that this work proceed to completion concurrently with other departmental investigations of land and water resources to permit an effective and well integrated departmental program.

The cadastral survey work is necessary in order to establish legal descriptions of lands within the basin area. The matter of official designation of legal subdivisions is of particular concern to farmers and stockmen so that they may be assured any improvements they construct are located on the land intended.

FISH AND WILDLIFE SERVICE

I will read a statement on the Fish and Wildlife Service estimate: The Missouri Basin project, now being planned and constructed by the Bureau of Reclamation and Corps of Engineers, is a water resources development project designed primarily to provide for flood control, irrigation, and hydropower production in that basin. As authorized by Public Law 732, the Fish and Wildlife Service proposes to work with these two agencies to the end that the Missouri Basin project is constructed with a minimum of damage to fish and wildlife resources and, wherever practicable and consistent with the primary purpose of project units, take steps to improve hunting and fishing in connection with the construction of individual features of the project. The Fish and Wildlife Service has similar responsibilities with respect to minor power projects licensed by the Federal Power Commission, and the drainage, flood retardation, and soil erosion prevention program of the Department of Agriculture to the Missouri River Basin.

In order to carry out this activity effectively, the Service is periodically furnished with the project-planning schedules of the construction agencies. Following receipt of such information, the Service makes inventories of fish and wildlife resources in the project areas, studies the projects in detail, and determines to what extent the projects would damage or benefit fish and game. Where it is found that damages would be substantial, possibilities for modifying the project are discussed with the construction agency. Project plans can often be modified so as to reduce damages to or increase fish and wildlife resources with minor cost to the project, particularly if project studies are in the early planning stages. The Service works with the construction agency to assist in bringing about the added benefits. In all of these activities the Service works closely with the appropriate State game and fish departments.

The Service activities outlined above involve many diverse studies, such as the effects of irrigated agriculture, on various forms of wildlife; the effect of reduced stream flows on both warm- and cold-water fisheries and fur animals; the effect of agricultural drainage projects on waterfowl; the effect of large reservoirs on the displacement of big game such as elk and deer and the normal migrations of such animals; the value of fish and wildlife resources to the economy of local communities and the States; the economic and recreational value

of fish and game in relation to regional and national needs; requirements for new Federal or State wildlife refuges and fish hatcheries as they may be needed to complement the construction of water resources projects planned by other agencies, and many others.

NATIONAL PARK SERVICE

The next is the National Park Service.

The National Park Service began participating in the over-all program for developing the Missouri River Basin in 1945. The Service's work lies in two separate fields: (1) Studies of the recreational resources of the basin and the formulation of plans for their conservation and use, and (2) surveys of historic and archeological sites to determine what archeological specimens and historic data should be recovered and recorded, and the salvage of these irreplaceable materials before flooding. These two activities are discussed separately as follows:

RECREATIONAL STUDIES

This program which was initiated in 1945 has two phases: (*a*) The basin-wide survey which is comprehensive and fundamental to the conservation and proper development of the recreation resources of the basin, existing and potential, and (*b*) upon request of the Bureau of Reclamation or the Corps of Engineers, the investigation of recreation potentialities of individual reservoir sites and, in the case of the Bureau, planning for their development.

The basin-wide survey is conducted with the cooperation of other Federal agencies and of State and local agencies which may be in a position to assist in supplying information or data. Analysis is made of the basin's recreation needs, the recreation resources and what is happening to them, and recommendations made regarding measures which should be taken to conserve those resources and for the development of recreation facilities where most needed.

Investigations are made of individual reservoir sites and reports subsequently submitted to sponsoring agency with Service conclusions and recommendations. These reports may be "reconnaissance" (based on preliminary or incomplete data) or "project" (based upon a more thorough field study and well-developed engineering data). For the purposes of the Corps of Engineers, who maintain their own staff of planners, one of these reports is sufficient. The Bureau, however, relies upon the Service for the preparation of master plans, detail development plans, and negotiations with State or local agencies for ultimate administration when it has been found that a reservoir site has recreational possibilities and that recreation developments are needed in the locality.

ARCHEOLOGICAL AND HISTORICAL SURVEYS AND SALVAGE

This program, in progress since 1946, is to survey, record, and recover irreplaceable historical and archeological materials in the water-control project sites of the Bureau of Reclamation and the Corps of Engineers prior to flooding or other destruction. The program provides for the recovery of a minimum of materials and artifacts, and is conducted with the full assistance of the Smithsonian

Institution, leading State universities, and research institutions, who also contribute financially. These materials and data are of great scientific importance, and upon their recovery they are placed in regional or State museums, laboratories, or libraries, where they become reference sources in connection with studies of the history or prehistory of the basin. Industrial mobilization now in progress is resulting in the acceleration of many projects for construction of dams and related power facilities. This scientific recovery work must keep step with such construction, since once the lands are flooded with waters impounded by dams, the materials are lost forever. Only a minor percentage of available materials are salvaged.

BUREAU OF MINES

Next is the Bureau of Mines.

1. Fuels: (a) Coal, $33,800: Coal mining methods: Solid fuels, to the best of present knowledge, are the Missouri Basin's most significant undeveloped mineral resource and, in fact, will be the commodity upon which large segments of the basin's future economy will be established. Effective utilization of these resources is complicated, among other factors, by the cost of mining by present practices. Studies proposed in this program would develop basic information for determining production costs under a variety of conditions and for planning eventual utilization of known extensive reserves on a scale far greater than possible at present. Studies would also indicate methods that should be employed to avoid wasteful practices not consistent with good conservation practices. Particular emphasis will be placed on areas that will be called upon to supply fuels for thermal power plant consumption—particularly in the States of Montana, Wyoming, Colorado, and North Dakota. The program is essentially a continuation of studies to be conducted during fiscal year 1952.

Coal preparation and utilization: The possibility of effecting greatly improved methods for the derivation of energy from the extensive low-rank coal reserves in the basin has been indicated by continuing research. In two instances research has reached stages where demonstration-scale operations would be most effective in encouraging expanded usage of the low-rank fuels by existing and new industries. It would be desirable to construct, and operate for a demonstration period, facilities for flash-drying and for steam drying low-rank Wyoming coals and North Dakota lignites, at points adjacent to existing industrial consumers and thermal power plants.

Coal production and distribution: In view of the important place of solid fuel resources in the economy of the basin, a proper and continuous appraisal of these commodities in a form acceptable to the needs of the cooperating agencies of the Department and to current and potential producers and consumers is required. It is proposed to bring together annually all statistical data on solid fuels, technical or physical developments and results of individual or continuing investigations on any phase of solid fuels utilization in the Missouri Basin, and to relate such data that are significant to the economic feasibility for expanded utilization of basin solid fuels. This is essentially a basin-wide economic and statistical compilation for the purpose of facilitating planning functions of the Federal and State agencies.

(*b*) Petroleum and natural gas, $21,000: Primary production: Petroleum and natural gas are important resources in five of the States of the Missouri Basin. While research and field studies are being pursued continuously with regard to national and industry requirements, there are many fields of activity that are unique to the Missouri Basin and require accelerated attention at this time to provide adequate information for basin planning purposes. Investigation under this function is restricted to phases of the petroleum and natural gas industry that will be effected by or will effect authorized water and land development programs. These include studies of: Power requirements for pumping wells, the number of wells now being pumped electrically and future trends in such practice, power requirements for lease transfer pumps in gathering systems, use of Wyoming black oils, use of petroleum products and gas in the generation of power, electrical dehydration, plant water supplies, and shop and camp facilities. Because much field and laboratory study is involved in these investigations, the function has not kept pace with other mineral investigatoins and should be accelerated.

Secondary recovery: In recent years the production of oil from some older fields has been increased substantially through secondary recovery by water flooding. A contemplated survey will include detailed studies of existing and potential secondary recovery operations in all of the producing oil fields of the Missouri Basin. The field study will provide a means of evaluating the continued significance of the industry at specific sites in the basin as well as the basis for estimating trends in power demands for secondary recovery operations throughout the area.

2. Minerals and metals: (*a*) Ferrous metals and alloys, $7,600: Iron: In instances where the required information for basin planning is on an area basis, because of advanced development of particular opportunities in selected portions of the basin, studies are conducted either on a county-to-county basis or within some district defined a common pattern of operating or other conditions. In such surveys all commodities are included. While iron for steel is not of major significance in the basin, instances are known where minor local sources can be important in supporting the utilization of other commodities.

Manganese: As in the case of iron-bearing materials, it is important that all possible sources of manganese be studied in the course of the area or county-to-county surveys.

Ferroalloy metals, general: As in the case of iron and manganese-bearing materials, it is necessary that all-mineral-commodity area surveys include studies of any other ferroalloy metals that may be found within the limits of the areas selected for survey.

(*b*) Nonferrous metals, $14,000: Copper, lead and zinc: Numerous small or submarginal copper deposits in the basin should be thoroughly investigated in connection with the all-commodity area surveys. Throughout the western portion of the basin, numerous small or unproven deposits of lead and zinc have been reported. Under certain conditions of economy and demand, the copper, lead, and zinc deposits in the aggregate can produce substantial quantities of metal and are of considerable significance in the future economy of the basin. A large part of this study is to be confined to economic and statistical surveys to be conducted on a basin-wide scale.

Other nonferrous metals: As in the case of copper, lead, and zinc, it is necessary that the complete mineral commodity area studies permit surveys of current and potential sources of all other nonferrous metals within the limits of the areas selected for detailed study.

(*c*) Nonmetallic minerals, $58,000: Minerals of construction: Because of the greatly increased demand for construction materials occasioned by large public works and above-normal construction purposes, materials for aggregates, cement manufacture, and fabricated mineral-base structural materials are of great importance throughout the basin area. Determination of the suitability of available raw materials for construction purposes is an important part of all general mineral potential surveys in the basin. Furthermore, detailed economic and statistical studies are required in planning expanded utilization of the substantial sources of suitable raw materials in the area, and such studies will comprise a major portion of this function.

Fertilizer minerals and chemicals: One of the major nonmetallic mineral resources of the basin, and one that is largely undevelged, is phosphate rock. The rock occurs in substantial quantities in the basin. The program proposes a continued study of means of utilizing this resource and investigation of sources of sulfur and other commodities required in the manufacture of mineral fertilizer in the basin.

Ceramics and refractories: Because a number of important potential sources of materials suitable for the manufacture of ceramics and refractories exist in the basin, it is proposed that the sources of such material be fully investigated in connection with other mineral commodities in the course of area or county-to-county surveys.

Utilization of pegmatites: A variety of important and critical minerals exist in some quantity in pegmatite deposits in the basin. These minerals include mica, feldspar, beryl, tantalite, columbite, a variety of lithium minerals, and radioactive minerals. In some instances the pegmatite deposits of the basin comprise the major potential domestic source of these commodities. Continued investigation of these minerals is proposed for the purpose of determining if and when changing and improving economic and operating considerations will permit exploitation of these important mineral commodities.

Beneficiation of nonmetallic minerals: During the field investigation of current and potential sources of nonmetallic minerals in the basin there are a number of instances where preliminary laboratory research is required to develop information necessary to the proper evaluation of the sources. Such activity is a normal part of initial nonmetallic mineral source investigation and is generally an essential service function to field investigations of nonmetallic mineral sources.

Development and synthesis of industrial minerals: As in beneficiation of nonmetallic minerals, this function proposes a series of initial laboratory investigations to be conducted concurrently with field studies where the significance of raw material sources can only be evaluated with proper knowledge of their industrial adaptability. The function is particularly concerned with investigating new methods for utilizing undeveloped raw materials in a manner that can readily be adapted to current industrial needs.

(*d*) Mineral research unclassified, $15,600: Research unclassified: The Bureau of Mines has at its disposal facilities, equipment, and personnel devoted to the study of physics as applied to mining prac-

tices and rock characteristics. The services of this organization have been continually requested by agents concerned with construction phases of the Missouri Basin projects and results of cooperative studies have been important in deciding construction phases of these public works and substantial reduction in expenditures. Since construction is involving tunneling and excavation procedures and problems that are unique and without precedent, such studies and applied instrumentation that will permit forecasting the behavior of rock and less consolidated materials during blasting and excavation are vital to the successful planning and construction phases of the basin project.

BUREAU OF INDIAN AFFAIRS

Next we come to the Bureau of Indian Affairs.

The Missouri River Basin 1953 program includes approximately 20 Indian reservations embracing about 14,500,000 acres of Indian-owned land. Nearly 70,000 Indian people live on these lands. The Missouri Basin development program directly affects large areas of these lands, and contains elements which will influence the social and political development of the Indian people.

The Bureau of Indian Affairs' program now under way will provide for proper use and protection of Indian land and water resources and also include land adjustment for the resettlement of Indian families; the location and laying out of homesteads, farms, and ranches; development of plans for the utilization of areas selected by resettled families; and the development of road locations in the areas to be resettled, as well as sites for school, health, and other facilities. It is essential that this phase of work keep pace with other Bureau programs.

The application of the $325,000 as applied to the Bureau of Indian Affairs will allow them to carry on a limited program.

GEOLOGICAL SURVEY

The Geological Survey occupies an important position in the Missouri Basin project.

The total estimate for 1953 is $3,500,000. Even with the prospect of a curtailed construction program during fiscal year 1953 due to the international emergency, the basic data program of the Geological Survey should be carried on at an adequate scale. Experience has shown that serious handicaps and delays in the development work could have been avoided if an adequate basic data program had preceded work by the action agencies. Not only does this program provide basic data essential to the development of the water, land, and mineral resources of the basin, but it also contributes substantially to a healthy national economy during the present emergency, by furthering industrial mobilization and stimulating the production of civilian and vital military supplies.

Topographic surveys and mapping: Adequate topographic mapping is a prerequisite and an indispensable adjunct to the general planning preconstruction studies which occur in the early stages of programs for the utilization of land and water resources and are, therefore, essential in the progressive development of the Missouri River Basin. To be of maximum use to the entire basin program, topographic maps must be available at the earliest possible date. Topo-

graphic mapping operations for the fiscal years 1952 and 1953 are planned for a total of 26 projects in 9 States to meet the primary and urgent mapping requirements of the two construction agencies, the Bureau of Reclamation and the Corps of Engineers.

Geologic and mineral resource surveys and mapping: To provide adequate basic data on the nature of the earth materials, at and below the surface, in areas where construction is planned or is in progress and in areas where mineral resources may occur, and to provide adequate inventories of these mineral resources, geologic investigations and mapping are planned which will yield basic data on surface and bedrock conditions necessary to sound planning of construction works and on sources of construction materials, and on the occurrence and distribution of such diverse minerals as oil, gas, coal, phosphate, bentonite, chromite, pegmatite deposits and others.

Water resources investigations: Adequate information on the quantity and distribution of the surface-water supplies, the occurrence and availability of ground waters, and the sediment loads of the streams, is indispensable for planning, constructing, and operating all types of works for the development and utilization of the water resources of the Missouri River Basin. Indicative of the great need for such basic data by the Reclamation Bureau and other action agencies, is their joint recommendation that the Geological Survey construct and operate 615 additional stream-gaging stations in the basin. Plans for 1953 include continuation of stream-gaging stations, investigations of the sediment loads of streams, special studies of the causes and sources of erosion and of the aggradation or degradation of stream beds and banks, investigations of ground-water resources, and determination of the chemical quality of surface and ground waters throughout the basin, including compilation and analysis of water data.

Operation and Maintenance

Amounts available for obligation

	1951 actual	1952 estimate	1953 estimate
Appropriation or estimate:			
Reclamation fund, special fund	$11,957,400	$12,476,494	$14,940,450
Colorado River Dam fund	1,808,000	1,671,000	2,143,000
General fund	1,681,600	1,830,100	1,916,550
Total appropriation or estimate	15,447,000	15,977,594	19,000,000
Balance transferred from "Construction and rehabilitation, Bureau of Reclamation," pursuant to Public Law 759, 81st Cong	24,956		
Reimbursements from non-Federal sources	2,375,843	1,968,980	1,922,620
Reimbursements from other accounts	365,386	86,300	70,000
Total available for obligation	18,213,185	18,032,874	20,992,620
Unobligated balance, estimated savings	−41,227		
Unobligated balance, returned to unappropriated receipts	−2,331,504		
Obligations incurred	15,840,454	18,032,874	20,992,620

Note.—Reimbursements from non-Federal sources shown above are from water users for operation and maintenance (Interior Department Appropriation Act, 1952).

Obligations by activities

Description	1951 actual	1952 estimate	1953 estimate
Direct Obligations			
1. Yuma project, Arizona-California	$888,762	$299,800	$282,500
2. Colorado River front work and levee system, Arizona-California-Nevada	976,627	1,073,000	1,083,450
3. Parker-Davis project, Arizona-California-Nevada	1,507,896	2,420,600	2,268,000
4. Boulder Canyon project, Arizona-Nevada	1,691,536	1,671,000	1,553,000
5. Central Valley project, California	1,768,032	2,303,584	3,227,900
6. Orland project, California	99,231	109,460	107,000
7. Colorado-Big Thompson project, Colorado	430,236	840,300	1,166,600
8. Maincos project, Colorado	2,312	6,500	7,250
9. Pine River project, Colorado	6,071	6,000	6,000
10. San Luis Valley project, Colorado			9,300
11. Boise project, Idaho	297,442	424,000	580,900
12. Minidoka project, Idaho	421,059	440,400	456,000
13. Rathdrum Prairie project, Idaho, Post Falls Unit	2,486	2,600	2,800
14. Hungry Horse project, Montana			195,100
15. Milk River project, Montana	71,442	81,850	82,000
16. Missoula Valley project, Montana	1,951	2,500	3,000
17. Sun River project, Montana	6,206	4,302	4,370
18. Mirage Flats project, Nebraska	20,057	42,093	
19. North Platte project, Nebraska-Wyoming	335,091	311,600	321,400
20. Boulder City, Nevada			590,000
21. Carlsbad project, New Mexico	10,202	10,250	10,000
22. Rio Grande project, New Mexico-Texas	1,125,065	1,726,100	2,167,300
23. W. C. Austin project, Oklahoma	98,891	175,000	185,000
24. Deschutes project, Oregon	189,968	180,000	193,000
25. Umatilla project, Oregon	8,715	11,000	10,000
26. Vale project, Oregon	4,504	4,525	4,600
27. Klamath project, Oregon-California	504,797	545,000	561,700
28. Owyhee project, Oregon-Idaho	379,035	460,000	20,000
29. Belle Fourche project, South Dakota	2,855	5,000	5,000
30. Rapid Valley project, South Dakota	6,106	5,000	5,100
31. Balmorhea project, Texas	6,297		
32. Provo River project, Utah		12,000	12,000
33. Columbia project, Washington	2,232,049	2,386,600	3,409,000
34. Yakima project, Washington	447,566	515,600	525,000
35. Kendrick project, Wyoming	519,568	568,600	525,700
36. Riverton project, Wyoming	203,236	257,860	217,350
37. Shoshone project, Wyoming-Montana	413,877	287,350	292,200
38. Soil and moisture conservation operations	705,900	757,100	833,100
Total direct obligations	15,475,068	17,946,574	20,922,620
Obligations Payable Out of Reimbursements From Other Accounts			
3. Parker-Davis project, Arizona-California-Nevada	360,725	83,800	68,000
4. Boulder Canyon project, Arizona-Nevada	79	2,000	2,000
5. Central Valley project, California	1,300		
11. Boise project, Idaho	401		
12. Minidoka project, Idaho	1,226		
24. Deschutes project, Oregon	90		
36. Riverton project, Wyoming	1,498		
37. Shoshone project, Wyoming-Montana	22		
38. Soil and moisture conservation operations	45	500	
Total obligations payable out of reimbursements from other accounts	365,386	86,300	70,000
Obligations incurred	15,840,454	18,032,874	20,992,620

Obligations by objects

Object classification	1951 actual	1952 estimate	1953 estimate
Summary of Personal Services			
Total number of permanent positions	3,363	3,266	3,620
Full-time equivalent of all other positions	71	53	49
Average number of all employees	2,682	2,966	3,583
Average salaries and grades:			
General schedule grades:			
Average salary	$3,868	$4,500	$4,634
Average grade	GS-6.1	GS-6.6	GS-6.7
Crafts, productive, and custodial grades:			
Average salary	$3,029	$3,349	$3,472
Average grade	CPC-5.2	CPC-5.2	CPC-5.4
Ungraded positions: Average salary	$3,516	$3,681	$3,857
Personal service obligations: Permanent positions	9,281,855	11,378,091	14,235,559
Part-time and temporary positions	184,480	153,636	153,805
Regular pay in excess of 52-week base		35,702	43,515
Payment above basic rates	305,492	303,416	383,270
Total personal service obligations	9,771,827	11,870,845	14,816,149
Direct Obligations			
01 Personal services	9,594,720	11,870,845	14,816,149
02 Travel	126,444	184,301	195,623
03 Transportation of things	90,297	126,166	153,552
04 Communication services	45,510	72,386	83,169
05 Rents and utility services	246,439	409,670	477,054
06 Printing and reproduction	17,605	18,764	19,538
07 Other contractual services	2,393,940	1,548,880	1,548,397
Services performed by other agencies	63,656	72,985	66,556
08 Supplies and materials	2,070,372	2,614,753	2,532,835
09 Equipment	851,606	674,097	845,921
10 Lands and structures	531,043	778,889	604,100
13 Refunds, awards, and indemnities	5,649	45,093	2,700
15 Taxes and assessments	8,836	16,007	18,128
Subtotal	16,046,117	18,432,836	21,363,722
Deduct charges for quarters and subsistence	571,049	486,262	441,102
Total direct obligations	15,475,068	17,946,574	20,922,620
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	177,107		
02 Travel	8,091		
03 Transportation of things	1,581	800	1,200
07 Other contractual services	38,057	20,000	25,000
08 Supplies and materials	84,297	56,250	37,000
09 Equipment	55,852	9,250	6,800
13 Refunds, awards, and indemnities	401		
Total obligations payable out of reimbursements from other accounts	365,386	86,300	70,000
Obligations incurred	15,840,454	18,032,874	20,992,620

Analysis of expenditures

	1951 actual	1952 estimate	1953 estimate
Unliquidated obligations, start of year	$2,229,418	$3,624,821	$3,400,000
Obligations incurred during the year	15,840,454	18,032,874	20,992,620
	18,069,872	21,657,695	24,392,620
Deduct:			
Reimbursable obligations	2,741,229	2,055,280	1,992,620
Unliquidated obligations, end of year	3,624,821	3,400,000	4,145,000
Adjustment in obligations of prior years	8,132		
Total expenditures	11,695,690	16,202,415	18,255,000
Expenditures are distributed as follows:			
Out of current authorizations	9,779,919	13,577,594	15,855,000
Out of prior authorizations	1,915,771	2,624,821	2,400,000

Mr. KIRWAN. The next estimate is the item "Operation and maintenance."

The appropriation for this item for 1952 is $15,997,594 and the estimate for 1953 is $19,000,000.

I suggest that the estimate for 1953 be considered by the committee in the same manner as we took up the estimate for 1952. There will be inserted in the record at this point the general statement of the operation and maintenance estimate found on pages 56 to 58 and 64 through 67 of the justification and the justifications for each project will be inserted at the conclusion of committee questions.

(Pp. 56 to 58 and 64 through 67 are as follows:)

General statement

Appropriation, fiscal year 1952	$15, 977, 594
Funds advanced by water users	1, 968, 980
Total obligation program, fiscal year 1952	17, 946, 574
Estimate of appropriation, fiscal year 1953	19, 000, 000
Funds advanced by water users	1, 929, 920
Total obligation program, fiscal year 1953	20, 929, 920

During fiscal year 1953, 32 projects or divisions of projects, many of which are multiple-purpose in scope, will be operated and maintained in whole or in part by the Bureau of Reclamation with appropriated O. and M. funds or with trust funds advanced by the water users. The appropriation requested for this activity will also provide for operation and maintenance of the lower Colorado River front work and levee system, soil and moisture conservation operations, and operation of Boulder City, Nev. Excluded are completed units of the Missouri River Basin project, and certain other partially completed projects, the operation and maintenance of which is financed from construction funds, and the Fort Peck project transmission system, which is financed from a revolving fund.

Irrigation facilities.—Appropriated funds in the amount of $3,778,400 will be required in fiscal year 1953 for the operation and maintenance of the irrigation facilities of 12 reclamation projects or divisions of projects. In addition, 16 projects or divisions of projects will be operated in whole or in part by the Bureau of reclamation with trust funds advanced by water-user organizations.

This appropriation request represents an increase of $556,416 over the amount appropriated for the same purpose for fiscal year 1952. The irrigation and maintenance activities of the Bureau will necessarily be expanded in fiscal year 1953 to provide for the operation of new units of projects being completed under the construction program and to meet the requirements for water service to new areas. In the regular operation and maintenance of older projects, special emphasis will continue to be given to catching up on deferred maintenance and to the replacement of deteriorated and worn-out structures and equipment, in order to provide for maintenance of a high operating efficiency and for protection of the Federal investment.

Power facilities.—Appropriated funds in the amount of $12,715,040, an increase of $1,789,540 over fiscal year 1952, will be required in fiscal year 1953 for the operation and maintenance of the Bureau's power systems developed in connection with multipurpose projects. The power systems on these projects, numbering 15, include 25 power plants and 4,900 miles of high-voltage transmission lines. (Fort Peck project is financed from a revolving fund.) Energy sales and revenues for electric operations are shown in the following tabulation:

Fiscal year	Energy sales in millions of kilowatt-hours	Revenue in dollars
1951	20, 975	35, 927, 370
1952	22, 170	41, 658, 000
1953	22, 470	42, 996, 000

Increases in energy sales and revenue result from the addition of 323,000 kilowatts in fiscal year 1952 and 238,750 kilowatts in fiscal year 1953. Surplus electric energy not required for project construction, irrigation pumping purposes, or other project uses, is sold to wholesale customers such as municipalities, REA cooperatives, private utilities, and other Government agencies. Replacements and improvements of power systems are also financed from operation and maintenance funds on a number of the older projects.

Other operation and maintenance activities.—In addition to the activities associated directly with the operation and maintenance of irrigation and power systems, there are included in the O. and M. estimates nonreimbursable items for operation and maintenance of the lower Colorado River front work and levee system and the soil and moisture conservation operations. Work on the Colorado River front work and levee system provides for continuing investigations and for alleviation of current and anticipated river operation problems, maintenance of river operation facilities, and recording of river behavior from Lee Ferry to the Mexican border. The soil and moisture conservation program provides for continuance of the Bureau's program for conservation of public land and water resources and for the protection of reservoirs, canals, and other Reclamation facilities from silting or other effects of erosion.

Included in the O. and M. budget for the first time as a separate item is a request for funds for operation of the municipality of Boulder City, Nev., which heretofore has been included as a part of the operation and maintenance estimate of the Boulder Canyon project.

Fiscal year 1952 actual allotments and fiscal year 1953 estimated allotments

State and project	Irrigation			Power			Total project		
	Fiscal year 1952	Fiscal year 1953	Increase or decrease	Fiscal year 1952	Fiscal year 1953	Increase or decrease	Fiscal year 1952	Fiscal year 1953	Increase or decrease
Appropriation or estimate:									
Arizona-California: Yuma	$170,800	$197,400	+$26,600	$85,000	$29,500	−$55,500	$255,800	$226,900	−$28,900
Arizona-California-Nevada:									
Colorado River front work and levee system	1,073,000	1,083,450	+10,450				1,073,000	1,083,450	+10,450
Parker-Davis				2,420,600	2,268,000	−152,600	2,420,600	2,268,000	−152,600
Arizona-Nevada:									
Boulder Canyon				1,671,000	1,553,000	−118,000	1,671,000	1,553,000	−118,000
Boulder City, Nev.[1]								590,000	+590,000
California: Central Valley	1,094,584	1,810,000	+715,416	1,209,000	1,417,900	+208,900	2,303,584	3,227,900	+924,316
Colorado:									
Colorado-Big Thompson	90,000	111,000	+21,000	750,300	1,055,600	+305,300	840,300	1,166,600	+326,300
San Luis Valley		9,300	+9,300					9,300	+9,300
Idaho:									
Boise	195,000	253,600	+58,600	209,000	306,800	+97,800	404,000	560,400	+156,400
Minidoka	50,000	51,800	+1,800	266,900	310,200	+43,300	316,900	362,000	+45,100
Montana: Hungry Horse					195,100	+195,100		195,100	+195,100
Nebraska-Wyoming: North Platte				231,600	221,400	−10,200	231,600	221,400	−10,200
New Mexico-Texas: Rio Grande				721,100	1,197,300	+476,200	721,100	1,197,300	+476,200
Oregon: Deschutes	180,000	193,000	+13,000				180,000	193,000	+13,000
Oregon-California: Klamath	329,600	346,300	+16,700				329,600	346,300	+16,700
Oregon-Idaho: Owyhee	460,000		−460,000				460,000		−460,000
Washington:									
Columbia Basin	35,000	149,000	+114,000	2,351,600	3,260,000	+908,400	2,386,600	3,409,000	+1,022,400
Yakima	492,000	500,000	+8,000	23,600	25,000	+1,400	515,600	525,000	+9,400
Wyoming:									
Kendrick				568,600	525,700	−42,900	568,600	525,700	−42,900
Riverton	73,000	79,000	+6,000	184,860	138,350	−46,510	257,860	217,350	−40,510
Shoeshone	52,000	78,000	+26,000	232,350	211,200	−21,150	284,350	289,200	+4,850
Various: Soil and moisture conservation operations	757,100	833,100	+76,000				757,100	833,100	+76,000
Total appropriation or estimate	5,052,084	5,694,950	+642,866	10,925,510	12,715,050	+1,789,540	15,977,594	19,000,000	+3,022,406
Funds advanced by water users:									
Arizona-California: Yuma	44,000	55,600	+11,600				44,000	55,600	+11,600
California: Orland	109,460	107,000	−2,460				109,460	107,000	−2,460
Colorado:									
Mancos	6,500	7,250	+750				6,500	7,250	+750
Pine River	6,000	6,000					6,000	6,000	
Idaho:									
Boise	20,000	20,500	+500				20,000	20,500	+500
Minidoka	123,500	94,000	−29,500				123,500	94,000	−29,500
Rathdrum Prairie-Pose Falls unit	2,600	2,800	+200				2,600	2,800	+200

Montana:									
Milk River	81,850	82,000	+150				81,850	82,000	+150
Missoula Valley, Big Flat unit	2,500	3,000	+500				2,500	3,000	+500
Sun River, Greensfield division	4,302	4,370	+68				4,302	4,370	+68
Nebraska-Kansas: Mirage Flats	42,093		−42,093				42,093		−42,093
Nebraska-Wyoming: North Platte	80,000	100,000	+20,000				80,000	100,000	+20,000
New Mexico: Carlsbad	10,250	10,000	−250				10,250	10,000	−250
New Mexico-Texas: Rio Grande	1,005,000	970,000	−35,000				1,005,000	970,000	−35,000
Oklahoma: W. C. Austin	175,000	185,000	+10,000				175,000	185,000	+10,000
Oregon:									
Umatilla	11,000	10,000	−1,000				11,000	10,000	−1,000
Vale	4,525	4,600	+75				4,525	4,600	+75
Oregon-California: Klamath	215,400	222,700	+7,300				215,400	222,700	+7,300
Oregon-Idaho: Owyhee		20,000	+20,000					20,000	+20,000
South Dakora									
Belle Forche	5,000	5,000					5,000	5,000	
Rapid Valley	5,000	5,100	+100				5,000	5,100	+100
Utah: Provo River	12,000	12,000					12,000	12,000	
Wyoming: Shoshone	3,000	3,000					3,000	3,000	
Total funds advanced	1,968,980	1,929,920	−39,060				1,968,980	1,929,920	−39,060
Total obligation program	7,021,064	7,624,870	+603,806	10,925,510	12,715,050	+1,789,540	17,946,574	20,929,920	+2,983,346

[1] The estimate of $590,000 for the operation of Boulder City, Nev., is included only in the "Total Project" column as it cannot be properly included in "Irrigation or Power" activities. Therefore, the "Total Project" column and the "Increase" shown in fiscal year 1953 is greater than the sum totals of Irrigation and Power by the estimate of $590,000.

Mr. LINEWEAVER. Mr. Chairman, Mr. Eaton will make a general statement on the operation and maintenance.

GENERAL STATEMENT

Mr. EATON. During fiscal year 1953 there will be 70 Federal reclamation projects, or divisions of projects, which must be properly maintained and operated to provide essential irrigation and power service to extensive areas throughout the West. This number includes both Bureau and water-user operated projects, but is exclusive of the Missouri River Basin project, 15 units of which will be completed or partially completed, and in an operation status during fiscal year 1953. It is also exclusive of the Fort Peck project transmission system, operation of which is financed from a revolving fund.

CONTRACTS WITH WATER USERS FOR TRANSFER OF OPERATION AND MAINTENANCE

The Bureau of Reclamation encourages water users to take over operation and maintenance of their irrigation distribution systems as soon as they are prepared to assume this responsibility. In pursuance of this policy, operation and maintenance of the Balmorhea project, Texas, was transferred to the water users on June 10, 1951, the Preston Bench project, Idaho, on July 1, 1951, the valley division of the Yuma project, Arizona, on July 1, 1951, and the Owyhee project, Oregon, on January 1, 1952, bringing to 58 the total number of projects, or divisions of projects, that are operated and maintained by water-users' organizations. In addition, one completed unit of the Missouri River Basin project is operated and maintained by the water users.

Contracts with the irrigation districts for transfer of operation and maintenance generally provide for retention of the storage dams and reservoir systems for operation by the Bureau of Reclamation. The Bureau also operates and maintains power generation and transmission facilities.

PROJECTS OPERATED BY BUREAU

There are 33 projects or divisions of projects that will be operated in whole or in part by the Bureau of Reclamation during fiscal year 1953 with appropriated O. and M. funds or with trust funds advanced by the water users. The total estimate of operation and maintenance funds required amounts to $20,922,620. The total appropriations requested, however, is $19,000,000, since $1,922,620 will be trust funds paid in advance by water users. Of the total appropriation requested, $12,715,050 will be required for operation and maintenance of power facilities and will be repaid to the Treasury from power revenues; $3,613,637 and $164,763 will be required for operation and maintenance of irrigation facilities and municipal and industrial water supply facilities, respectively, and will be repaid during the year by the water users; $590,000 will be required for the operation of Boulder City, Nev.; $1,083,450 will be required for the lower Colorado River front work and levee system; and $833,100 will be required for the Bureau's soil and moisture conservation operations. The last two items are nonreimbursable.

Under its program of irrigation operations, the Bureau of Reclamation will provide, with appropriated O. and M. and water-user

advanced trust funds, for the operation and maintenance of irrigation and municipal and industrial water supply facilities on 29 completed projects or divisions of projects. It will also provide for operation and maintenance of the lower Colorado River front work and levee system and for continuance of soil and moisture conservation operations.

ESTIMATE FOR 1953

The fiscal year 1953 estimate for irrigation project operations of $5,701,020 is $510,056 greater than for fiscal year 1952. These figures include funds advanced by the water users. The increase required is the net difference between the increase necessary to provide for new projects or units of projects being completed under the construction program and to meet added costs of continuing adequate operation and maintenance, replacements, and improvements on the older projects, and the decrease resulting from the transfer of the Owyhee project, except for the dam and reservoir, to the water users for operation and maintenance.

Facilities of the 12 irrigation projects operated in whole or in part by the Bureau of Reclamation with appropriated funds will be capable of providing irrigation water to 3,460,800 acres in fiscal year 1953, an increase of 156,000 acres over 1952. On all Federal reclamation projects, including the Missouri River Basin, irrigation facilities will be capable of supplying water to a total of 6,597,500 acres in fiscal year 1953, an increase of 220,500 acres over 1952. The irrigation facilities completed and in operation on all Federal reclamation projects will include 115 storage dams, 73 diversion dams, 350 pumping plants, 19,300 miles of canals and laterals, 5,590 miles of drains, 1,550 miles of telephone lines, and 11,000 miles of operating roads.

Under the Bureau's program of rehabilitation and betterment, we are continuing to catch up on some long-deferred maintenance on older projects. At the same time, special attention is being paid to current maintenance requirements on all projects in order to keep them at the highest possible operating efficiency.

The act of June 28, 1946, authorized annual appropriations to defray the cost of (*a*) operating and maintaining the Colorado River front work and levee system in Arizona, Nevada, and California; (*b*) constructing, improving, extending, operating, and maintaining the protection and drainage works and systems along the Colorado River; (*c*) controlling said river, and improving, modifying, straightening, and rectifying the channel thereof; and (*d*) conducting investigations and studies in connection therewith.

Operation and maintenance activities under the provision of that act extend along the lower Colorado River from Lee Ferry to the Mexican border, a river distance of 700 miles. The work program for fiscal year 1953, for which $1,083,450 is requested, includes continued surveys and investigations, channelization by means of dredging, maintenance of river control installations, and replacements and improvements of facilities and equipment.

An appropriation of $833,100 is requested to continue soil and moisture conservation operations on public lands under the Bureau's jurisdiction. This is an increase of $76,000 over the fiscal year 1952 appropriation.

The Bureau's soil and moisture conservation operations are particularly important, not only because of benefits to public lands resulting from prevention and control of soil erosion but also in connection with the prevention of sedimentation of reservoirs and the protection of water distribution systems above reclamation projects, around which has developed a major part of the agricultural economy of the Western States.

Many other functions are included in the work of operation and maintenance. They include negotiation and administration of new and amendatory repayment contracts, establishment and supervision of development farms, investigation in connection with sprinkler irrigation, inspection of structures and distribution systems, investigations and rectification of drainage problems, weed-control activities, and cooperation with agencies of the Department of Agriculture and of the States and with State colleges.

Operation and maintenance responsibilities also extend to projects under construction, where irrigation water may be delivered to portions of a project, and include matters pertaining to the selection and classification of irrigable lands, and lay-out of farm units, opening of public lands to entry, and selection of and assistance to settlers.

Included in the O. and M. budget for the first time as a separate item is a request for funds for operation of the municipality of Boulder City, Nev. This has previously been included as a part of the Boulder Canyon project. The estimated cost for this activity for fiscal year 1953 is $798,780, but the appropriation required is only $590,000 since $208,780, the estimated cost of water and power to be furnished to the city by the Boulder Canyon project, will be financed by an internal cost transfer and will not require appropriated funds.

Under its program of power operations, the Bureau of Reclamation will operate and maintain during fiscal year 1953, a total installed capacity of 4,465,200 kilowatts in 25 power plants, an increase of 238,750 kilowatts over 1952; approximately 4,900 miles of high-voltage transmission lines, an increase of 100 miles; and 192 substations and switchyards, an increase of 5 substations and switchyards. In fiscal year 1951, total power revenues from all projects amounted to $35,927,370. The estimated revenues for fiscal year 1952 and fiscal year 1953 are $41,658,000 and $42,996,000, respectively.

INCREASE REQUESTED

During fiscal year 1953, an allotment of $12,715,050 will be required for operation and maintenance, minor replacements, operating equipment for power facilities, and for payment of wheeling charges. This amount represents an increase of $1,789,540 over the total amount of $10,925,510 appropriated for the individual projects for fiscal year 1952. This increase is due primarily to the following causes:

(*a*) The increase in purchase power on the Rio Grande project in New Mexico, where a severe drought has existed for the past several years culminating in a complete shut-down of the Elephant Butte power plant in September 1951. In order to make up this deficiency, high-cost energy from privately owned steam plants will be required throughout the year even with resumption of operation of the Elephant Butte plant.

(*b*) The initial operation of the Hungry Horse project in Montana.

(*c*) The addition of the Pole Hill and Flatiron power plants on the Colorado-Big Thompson project in Colorado.

(*d*) An increase in wheeling costs due to increased loads and additional contracts.

The fiscal year 1953 estimates of $12,715,050 for operation and maintenance represent the minimum budget that will assure adequate maintenance and at the same time maintain full production of electric power from Bureau of Reclamation projects.

Not included in this request are the Fort Peck project which is operated from a continuing fund, and the Kortes, Boysen, and Angostura power plants totaling 52,000 kilowatts on the Missouri River Basin project which are financed from funds appropriated for the development of the Missouri River Basin.

INCREASED ACREAGE TO BE IRRIGATED

Mr. KIRWAN. What is the additional acreage to be irrigated in 1953 as compared to acreage added in 1952 with the comparison of estimated operating costs for the 2 years?

Mr. EATON. The increased acreage being served in 1952 is somewhat over 300,000 acres. The further increase in fiscal year 1953 will be in the order of 220,000 acres.

COMPARISON OF ADDITIONAL GENERATING CAPACITY AND TRANSMISSION FACILITIES, OPERATING COSTS, AND POWER REVENUES

Mr. KIRWAN. What is the comparison of additional generating capacity and transmission facilities added in 1952 and 1953 with the corresponding comparison of estimated operating costs?

Mr. MCPHAIL. A total installed capacity of 4,465,200 kilowatts will be in operation in 25 power plants in 1953. This is an increase of 238,750 kilowatts over 1952. Approximately 4,900 miles of high voltage transmission lines will be operated, which is an increase of a hundred miles over 1952.

One hundred and ninety-two substations and switchyards, which represent an increase of 5 substations and switchyards, will be operated in 1953.

Mr. KIRWAN. I would also like a comparison of estimated power revenues for 1952 and 1953.

Mr. MCPHAIL. To make that still plainer, if I may, Mr. Chairman, I would like to put in the figures for 1951, 1952, and 1953.

Mr. KIRWAN. All right.

Mr. MCPHAIL. In 1951 the total power revenues were $35,927,370. The estimated revenues for fiscal 1952 are $42,658,000. For fiscal 1953 they are $42,996,000.

PROJECTS TURNED OVER TO WATER USERS

Mr. KIRWAN. How many projects have been turned over to the water users for operating in the past year?

Mr. EATON. During the past year we turned over three additional projects to the water users.

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PROGRESS IN REDUCING IRRIGATION OPERATING COSTS

Mr. KIRWAN. Have you made any progress in reducing operating costs for irrigation?

Mr. EATON. We have substantially reduced the amount of appropriated funds through that process, transferring projects to water users. In addition to that, through increased efficiency and the use of mechanized equipment, we are making further reductions in the cost.

Mr. NORRELL. Mr. Commissioner, looking over the various projects that you listed here for increases or decreases in operation and maintenance, I find a few substantial increases that I would like to ask you something about.

Mr. LINEWEAVER. All right, sir.

Mr. NORRELL. I am looking at page 64 of your justification. I believe that shows the decreases and increases of the several projects.

Mr. LINEWEAVER. Yes, sir.

INCREASE REQUESTED FOR BOULDER CITY

Mr. NORRELL. The first one I would like to ask you about is the Boulder City, Nev. I notice an increase of $590,000. I wonder if you would give a brief explanation of that.

Mr. EATON. With your permission, I would like to read at this point a brief statement that describes the administration and expenses of Boulder City, Nev.

GROWTH OF BOULDER CITY

Boulder City, Nev., was established as a construction camp for Hoover Dam and power plant and grew to about 8,000 population at the time of peak employment. By 1937, most of the construction work was completed and Boulder City was transformed into a permanent operating town. During the early period as an operating camp, population dropped to about 2,000, and subsequently has increased to almost 4,000. With the recognition of Boulder City as a permanent community, problems of municipal administration have developed principally in relation to (*a*) establishment of responsible local government, (*b*) means for eliminating the Federal Government from its real estate and public utility operations in the municipality, and (*c*) provision for the division of costs of Boulder City activities between the project account (payable as part of the power charges to the allottees) and the nonproject account. The resolution of these problems is especially difficult because of the preponderant Federal responsibility for safe and efficient operation of the great reservoir and power plant and because of the Federal Government's role as sole landowner.

RESOLVING PROBLEMS

In recognition of the need for early development of practical means of resolving these major and attendant secondary problems, early in 1949, the Commissioner of Reclamation recommended and by memorandum of July 26, 1949, former Secretary of the Interior Krug approved the preparation of a report by independent consultant based upon his analysis and the information to be developed at public hearings. By mid-October 1949, Dr. Henry Reining, Jr., was ap-

pointed consultant and hearings officer. Dr. Reining is professor of public administration and political science at the University of Southern California; in addition, he has had wide experience as consultant in public administration for the State of California, various western municipalities, as well as with the Port of New York Authority and the Government of Brazil.

The Boulder City survey, under Dr. Reining's direction, was conducted independently of the Bureau of Reclamation and other Department of the Interior agencies, although staff assistance was provided principally by the regional director, Boulder City. The consultant was directed to secure the full cooperation of local interests, including the Boulder City residents, the Governor of Nevada, the power allottees, and the Federal agencies concerned. Hearings were to be conducted with full publicity and the report was to be helpful to local interests as well as to the Bureau of Reclamation and the Department of the Interior. Specifically, the consultant was requested to recommend as to (*a*) the form of local government considered most practicable, supported by a concrete plan for accomplishment, (*b*) the division of investments and operating costs and a related plan of local financing, and (*c*) a feasible method for transferring real property holdings of the Government not required for project operation to private and municipal ownership.

Public hearings were conducted by Dr. Reining during the months of November and December 1949, at which extensive factual information and expressions of views were secured from the local residents, the power allottees, and representatives of the Federal agencies. A summary of that material is contained in the consultant's interim report of January 1950, copies of which were distributed locally in Boulder City.

REPORT OF SURVEY MADE

The consultant's final report, which was presented to the Commissioner of Reclamation, May 1950, and which has been published as Senate Document No. 196, Eighty-first Congress, second session, in addition to detailed data regarding population, property, municipal expenses, and municipal services, contained recommendations responsive to the three specific questions addressed to him. The consultant's report recommends the establishment of local self-government through a series of progressive phases. The first phase involves the segregation of municipal management from operation of the reservoir and power plant by the Boulder Canyon project, together with the financial adjustments consequent to division of costs between project and nonproject accounts. The later features, particularly, require the enactment of legislation. The latter phases of local self-government, which would also require legislation, would vest increasing responsibility in the local community with ultimate establishment of a municipality incorporated under the laws of the State of Nevada.

The consultant's report recommends a formula for the division of municipal costs substantially in relation to the numbers of employees engaged in (*a*) Boulder Canyon project activities, (*b*) other Federal activities, and (*c*) non-Federal activities. On the basis of this division, and within specified monetary limitations, the consultant recommends that a share of municipal costs representing project purposes be financed from the Colorado River Dam fund; that another share of

these costs representing Federal nonproject activities be financed from the General Fund of the Treasury; and that the remainder of the costs be financed by turning over to the city the means for securing rental on land, profit from the water and power utility system, the sale of Government houses, and fees for local services. The application of this formula would require Federal legislation. The consultant recommends that ultimately, Federal financial support be in the form of "in-lieu of taxes."

Officials of the Bureau of Reclamation working with representatives of the Office of the Secretary of the Interior drafted a proposed secretarial order and the required legislation, together with other documents to effecutate the plan of improvement using Dr. Reining's report as a general guide.

SECRETARY'S ORDER NO. 2650

Secretarial order No. 2650 entitled "Administration of Boulder City, Nev.", copy attached, was executed by Secretary Chapman on July 27, 1951. This order establishing administrative segregation between the Boulder Canyon project and the Boulder City municipality also provides for a Boulder City municipal office under the supervision of a city manager to be appointed by the Commissioner of the Bureau of Reclamation and the establishment of an advisory council composed of representatives of the local residents, the power allottees, the director of region 3 of the Bureau of Reclamation, and other Interior agencies having employees in the area.

Copies of a draft of letter proposed for submission to the Eighty-second Congress, together with copies of a draft of bill to provide for the financial separation of Boulder City, Nev., from the other works of the Boulder Canyon project, to provide additional assistance to the Boulder City schools, and for other purposes, were transmitted to the Director, Bureau of the Budget, on July 27, 1951, for review and advice. It should be added, however, that on the basis of an on-the-spot reevaluation of the practical effect of certain aspects of the consultant's recommendations, as well as because of current economic conditions, there now appears to be a need for change in some features of the bill as presently drawn.

The secretarial order to initiate phase 1 of the Reining recommendations was, as noted, issued on July 27, 1951. As soon thereafter as possible a staff representative of the Commissioner was assigned to implement the provisions of order No. 2650. A substantial amount of administrative effort was required for this purpose. The keynote of the secretarial directive was to segregate the administration of Boulder City affairs from the Boulder Canyon project and to place such administration in the hands of a city manager. In this regard it was necessary first to establish the position of city manager within departmental and Civil Service Commission policy and thereafter to undertake recruitment for the position, again in positive compliance with civil-service regulations. Such regulations required, among other things, that there be a determination of minimum requisites for qualification, announcement of a nonassembled examination, and the systematic rating of applications filed in response to the announcement.

PROGRESS MADE

While these activities were in progress under the auspices of the Civil Service Commission, the Commissioner's representative acted to implement other machinery for which provision was made in the Secretary's order. The first local elections in the history of Boulder City were conducted and an advisory council composed of elected representatives of the citizens and designated representatives of Federal establishments and the power allottees was established. The advisory council will serve in cooperation with the city manager and will provide an instrument for local expression in the conduct of local affairs. Inasmuch as order No. 2650 provided that the citizens and power allottees as well as the Federal agencies should be consulted in the selection of a city manager, a special committee was created to afford a systematic means of expression on this subject. This special committee, like the advisory council, was composed of elected representatives of the citizens and designated representatives of the power allottees and the Federal agencies.

Tentative agreements were negotiated as to the division of administrative responsibility and its relation to assignment of personnel, property, and facilities as between the municipal operation and the Boulder Canyon project as such. Budget and accounting procedures directly related to a plan of municipal organization were prepared to insure minimum delay in a meaningful operation on the segregated basis. A number of the more serious problems which will be encountered in the various transition steps from a Federal town to a local self-government, self-sustaining community were analyzed to provide guidance to the city manager in those phases of his responsibility. In general, the procedural and research work which has been done in advance of the appointment of the city manager has provided guidelines for the city manager. Such procedures may be modified or adjusted in accordance with the city manager's day-to-day experience in the practicalities of city manager.

Announcement of the results of the civil-service examination for the city manager's position is expected by mid-February 1952 and it is in contemplation that a selection for the position will be made shortly thereafter.

(Order No. 2650, subject: Administration of Boulder City, Nev., is as follows:)

UNITED STATES DEPARTMENT OF THE INTERIOR

Washington

JULY 27, 1951.

ORDER NO. 2650

Subject: Administration of Boulder City, Nev.

SECTION 1. *Objective.*—The ultimate objective of the Department of the Interior shall be to establish Boulder City as a self-governing and self-supporting municipality incorporated under the laws of the State of Nevada. In general, the recommendations set forth in A Report as to Boulder City, Nev., by Dr. Henry Reining, Jr., will be followed in achieving this objective.

SEC. 2. *Boulder City municipal office.*—The Boulder City municipal office is established to carry out the responsibilities of the Secretary of the Interior for the administration of the local affairs of Boulder City. The office shall be administratively part of region 3 of the Bureau of Reclamation under the general direction of the regional director and the Commissioner of the Bureau of Reclamation.

SEC. 3. *City manager.*—The Boulder City municipal office shall be under the supervision of a city manager appointed by the Commissioner of Reclamation. In making the selection for the position, the Commissioner should consult with representatives of the local residents, the agencies of the Department having employees in the area, the power allottees, and professional organizations. It is essential that the incumbent have a high degree of professional competence combined with the ability to gain support and confidence of all the interests involved in the administration of Boulder City.

SEC. 4. *Advisory council.*—The city manager shall take immediate steps to establish an advisory council of representatives of the local residents, the power allottees, the director of region 3 of the Bureau of Reclamation, and other Interior agencies having employees in the area. The advisory council shall be consulted on all major decisions affecting the administration of local affairs of Boulder City. The representatives of the Interior agencies shall advise particularly on the impact of the proposed actions upon the segment of the national affairs under this jurisdiction.

SEC. 5. *Local and national affairs.*—The term "local affairs" as used in this order shall include the following types of activities:

(1) The program and finance operations for Boulder City, including the development of a program, preparation of the budget, and operation of the accounting system.

(2) Appointments and status changes of employees of the Boulder City municipal office.

(3) Management, leasing, maintenance, and disposition of housing and lands within the town site.

(4) Operation and maintenance of water, power, telephone, sewage, garbage and refuse disposal, recreation, library, parks, sidewalks, municipal buildings, and other facilities, utilities and services provided for the residents of Boulder City. The Boulder City hospital, airport, and school buildings will be subject to separate treatment under section 8.

(5) Police and fire protection.

(6) Community planning, including expansion of the town site.

(7) Relations with the school district, county, State, and power allottees, and other Federal agencies on all aspects of the administration of local affairs.

The term "national affairs" as used in this order shall include the following types of activities:

(1) Operation and maintenance of Hoover Dam, power plant, and related structures and facilities.

(2) Relations with the power allottees on matters other than the administration of local affairs.

(3) Water releases from the Colorado River.

(4) Guide service for the dam and power plant.

(5) Management of the Lake Mead recreation area.

(6) Operation of the Bureau of Mines experiment station.

(7) Lake Mead seismological survey.

SEC. 6. *Responsibilities of the city manager.*—The separation of each phase of the administration of local affairs from the other activities of the Department of the Interior in Boulder City and the achievement of the ultimate objective of self-government under the Nevada laws will be accomplished as quickly as it is feasible. The city manager shall develop specific programs for each phase of local affairs to accomplish these objectives guided by the recommendations of Dr. Reining's report. To carry out these programs, he may enter into agreements with the representatives of the agencies of the Department of the Interior in the area for the transfer of physical property, funds, and records; joint use of property personnel and facilities; and provision of administrative and technical services. Such agreements shall be in writing. If the proposed programs or agreements are outside the recommendations of Dr. Reining's report, existing legislation, or delegations of authority, the city manager shall submit his proposals. Also, where mutually satisfactory agreements to carry out the programs cannot be reached with the representatives of the agencies of the Department in the area, the city mananger shall report the situation. Copies of these recommendations, reports, and requests for authority with the advice of the staff of the regional office and the Commissioner's Office shall be sent to the representatives of the agencies of the Department in the area having an interest in the subject matter. The Commissioner shall resolve these problems within the limits of his authority or make recommendations for their resolution to the Secretary of the Interior.

After the programs have been established, the necessary agreements reduced to writing, and the required authorizations received, the city manager shall be primarily responsible for the execution of the programs.

SEC. 7. *Responsibilities of the director of region 3, Bureau of Reclamation.*—The director of region 3 of the Bureau of Reclamation shall continue to be responsible for the administration of those phases of the national affairs under his jurisdiction and shall administer, under existing arrangements, the various phases of local affairs until specific agreements for their transfer to the Boulder City municipal offices have been made with the city manager who is subject to the regional director's general direction as outlined above. After such transfers, the regional director shall participate in the administration of local affairs through the advisory council. If the regional director, after representing his views through the advisory council, feels that actions by the city manager will adversely affect his responsibilities for national affairs, he shall present his views to the Commissioner. To the extent that specific arrangements have been reached and reduced to writing, the regional director shall provide administrative and technical services and authorize the joint use of property, personnel, and facilities as a service to the Boulder City municipal office.

The regional director shall periodically evaluate the operations of the Boulder City municipal office, particularly with respect to their impact upon his responsibilities for national affairs and report his findings and any questions or objections to the policies and procedures being carried out by the city manager to the Commissioner of the Bureau of Reclamation.

SEC. 8. *School buildings, hospital, and airport.*—The city manager, in consultation with the representatives of the agencies of the Department in the area, shall develop recommendations on the operation and disposition of the Boulder City hospital, airport, and school buildings. These recommendations and the comments of the representatives of the agencies of the Department in the area shall be forwarded to the Commissioner of the Bureau of Reclamation.

SEC. 9. *Quarterly report of progress.*—The city manager shall report quarterly through the director of region 3 of the Bureau of Reclamation to the Commissioner of the Bureau of Reclamation on his progress toward administrative separation of Boulder City from the other activities of the Department in the area and on the execution of his responsibilities for the administration of local affairs. Copies of these reports shall be sent to the representatives of the other agencies of the Department in the area of their review and comment.

SEC. 10. *Channels of communication.*—The normal channels of communication and reporting on the routine affairs and major policy questions of the Boulder City municipal office shall be through the director of region 3 to the Commissioner of the Bureau of Reclamation, with copies to the representatives of the other agencies of the Department in the area. The regional director shall forward such correspondence to the Commissioner with an indication of his concurrence or comments.

OSCAR L. CHAPMAN,
Secretary of the Interior.

INCREASE REQUESTED ONLY A BOOKKEEPING INCREASE

Mr. EATON. Just to supplement that, Mr. Norrell, this is a bookkeeping increase rather than an actual increase. It is the same job and the same amount of money heretofore has been included, although unidentified separately as part of the operation and maintenance costs of the Boulder Canyon project.

In response to local interest and at the request of the congressional delegation we have segregated out the operation of Boulder City as a separate item and set it up separately. The amount of funds here identified is $590,000, just about the same amount of money and just exactly the same job as previously has shown up under the nonutility costs of the operation and maintenance of the Boulder Canyon project.

Mr. NORRELL. Just a new method of bookkeeping, is that what you tell us?

Mr. EATON. Yes, sir.

Just to take that city operation out from the cost of operating the dam and power plants.

PERSONNEL REQUIRED

Mr. NORRELL. Any new personnel involved at all?

Mr. EATON. We will have almost exactly the same number of employees. There will be a few new positions added, such as the position of city manager, to do the job that was previously done by the director of power, but we are also eliminating certain positions. so we come out with the same net.

Mr. NORRELL. I will leave that to Mr. Jensen to bring out. I know he will cover it.

INCREASE FOR CENTRAL VALLEY PROJECT

I notice a substantial increase in the Central Valley in California, $924,316. What is that?

Mr. EATON. Mr. Norrell, if you will look at page 94, you will see the principal items of increase shown on the tabulation. With a substantial completion of construction of all of the main features of Central Valley project last July, we are now delivering water throughout the entire length of the project. We have moved these features from the construction stage to the operation and maintenance stage.

You will notice on page 94, the fourth line, that we have increased irrigation service over 208 miles of canal. This increase includes also the total cost of operation and maintenance of the great Tracy pumping plant that pumps the water from the——

Mr. NORRELL. You will remember last year we had an argument before the committee regarding water projects in California. I am sure you remember that. Does this, in any way, include the subject matter of the argument of the last hearing?

Mr. EATON. No, sir. This is not a controversial item.

Mr. NORRELL. This is, in no way, controversial?

Mr. EATON. This is an entirely different matter from that subject of discussion.

Mr. NORRELL. You are not proposing here to start any new projects, are you?

Mr. EATON. No, sir. This refers entirely to matters that have been thoroughly before the committee without controversy.

INCREASE FOR COLORADO-BIG THOMPSON

Mr. NORRELL. The next item I would like to ask you about is the Colorado-Big Thompson. I notice an increase of $326,000 plus.

Mr. EATON. There again, Mr. Norrell, on page 100 of the justification, you will see that we are moving to features on which the construction has been completed. We are moving those into service and showing them on operation and maintenance. You will notice that right on the first line we have included for the first time operation and maintenance of Willow Creek Dam and Reservoir. On the next line we picked up Granby Reservoir, and the Willow Creek pumping plant and the canal system. This represents the increase of irrigation service due to the completion of the construction.

OPERATION COSTS TO LEVEL OFF

Mr. NORRELL. Is this going to level off at a maintenance cost about like this, or will the cost gradually continue to go up?

Mr. EATON. We anticipate on the two things you just asked us, Mr. Norrell, that we are right close to the stabilization point.

Also, I would like to point out, sir, that on these projects the revenues from the irrigation service offset those increased costs. As we complete these features on other projects that go into operation, the total estimate will increase, but not on these particular items.

PORTION OF INCREASE FOR POWER

Mr. LINEWEAVER. Before you leave Colorado-Big Thompson, just to complete the answer to your question, a considerable part of that $300,000 plus is power. If you desire some explanation of that from Mr. McPhail for the record, we will be glad to furnish it. I didn't want to leave the impression that all of that increase was irrigation.

Mr. NORRELL. I think that, with the chairman's consent, we should have that go into the record.

Mr. KIRWAN. All right.

(The information requested is as follows:)

The increased cost, fiscal year 1953 over fiscal year 1952, of the Colorado-Big Thompson "Operation and maintenance" program amounts to $326,300. This increase is broken down as follows:

Irrigation operations	$21,000
Power operations	305,300

The increase in the cost of irrigation operations is due to the operation in 1953 of the Willow Creek Dam, Reservoir, and pumping plant.

The increase in the cost of power operations is due to three factors: (1) change from interim to full operation in 1953 of the completed power plants and addition of new lines and substations; (2) the wheeling of power over the facilities of private utilities, and (3) the anticipated purchase of power to overcome generation deficiencies in the event of any delay in obtaining full generation from power plants to be completed in fiscal year 1953 and any adverse water conditions.

INCREASE FOR RIO GRANDE PROJECT

Mr. NORRELL. I am skipping down to a few more projects. One is the New Mexico-Texas. That is increase for the Rio Grande project of $476,200.

Mr. LINEWEAVER. Mr. McPhail will explain that.

Mr. MCPHAIL. The increase there, Mr. Norrell, is primarily in connection with the purchase of electrical energy. We have had a very difficult situation on the Rio Grande the last year or so because of insufficient runoff and the requirements for fish preservation. We are anticipating in the next year that we may have to increase the purchases of power in order to keep the contractors all supplied; however, whatever funds are involved in such purchases will be returned by the contractors that we serve.

DECREASE IN REQUEST FOR OWYHEE PROJECT

Mr. NORRELL. Then the next project I want to ask about is the Owyhee in Oregon and Idaho. I guess the reduction is because of the dam out there nearing completion. Is that it?

Mr. LINEWEAVER. That is a minus. We are turning that project over to the water users.

Mr. NORRELL. I want to congratulate you. That is a minus sign. That is encouraging.

Is that a mistatement, Mr. Commissioner?

Mr. LINEWEAVER. No, sir. That happened on January 1 this year, after we had submitted our estimates to the budget and had that approved. Then, when we turned the project over to the water users for operation and maintenance, we did reduce the budget estimate for the Owyhee project by $400,000 plus.

Mr. NORRELL. You don't have to explain any reduction. I will take that.

INCREASE FOR COLUMBIA BASIN PROJECT

The last item, then, was, I believe, the Columbia Basin—and that has a big plus sign. I think I understand the reason for that increase, but I believe the record ought to show why. It is $1,022,400.

Mr. LINEWEAVER. Power is $908,400, and $114,000 is irrigation.

Mr. McPhail will explain the $908,000 increase.

Major items in the $908,400 cost increase in fiscal year 1953 are the proposed rebuilding and rearranging of circuit-breaker installations for higher-capacity operation as requested by Bonneville Power Administration, $300,000; replenishment of inventory stocks of supplies, materials, small tools, and equipment, approximately $150,000; and property protection service, $84,000. The balance is required for higher administrative expenses, property replacements, nonutility (town and camp) expenses, and increased plant supervision, labor, and maintenance expenses resulting from generally higher price and wage loads.

REPAYMENT CONTRACT SITUATION

Mr. NORRELL. My own pet hobby is to find out how you are getting along on the repayment contracts.

Are they all current?

Mr. LINEWEAVER. Yes, sir.

I have a statement here on the repayment contracts executed in the last year.

(The statement referred to is as follows:)

ADMINISTRATION OF THE REPAYMENT CONTRACT PROGRAM OF THE BUREAU OF RECLAMATION

Repayment of the funds provided for reclamation water and power has always been a fundamental principle in the financing of reclamation projects throughout the Western States. That was as true of the initial reclamation law of 1902 as it is today under reclamation law. The Bureau of Reclamation supports the reimbursability principle with a vigorous program of contract negotiation and administration, not only because it safeguards the Federal investment in resource developments, but also because it provides for sound Federal, State, and local cooperation in the development of western water resources.

Progress of the past 5 years clearly indicates that the financial integrity of the reclamation program is in good condition. The negotiation of many additional contracts—new and amendatory—during this postwar period has not only added substantially to the amounts that will be returned to the Government, but it has also placed many of the older operating projects on a much sounder financial basis. The result is that water users' organizations now are under contract to repay the Federal Government more than one-half billion dollars for the construction of irrigation project works. Nearly $100 million has already been repaid by the water users. Delinquencies on repayment contract installments are less

than 2 percent of the amounts due. Revised repayment arrangements, now in process or contemplated, should reduce these minor delinquencies still further.

Following the close of World War II, resumption of project construction has called for the negotiation of new contracts for many projects throughout the West. As the construction program gradually picked up and reached a scale larger than at any time in the history of reclamation, the number of contracts to be negotiated likewise increased. New repayment contracts for projects under construction have been executed with 37 water users' organizations in the 5 years since the close of the war. This total includes those supplemental contracts where the repayment obligations have been increased to cover higher construction costs growing out of high and exceedingly unstable prices of the postwar period. The repayment obligation added by these new and supplemental contracts amounts to more than $129,000,000. In addition, as of January 1, 1952, there were 7 repayment contracts which had been approved as to form and were awaiting execution by the local water users' organizations, The total obligation of these pending contracts amounts to $49,344,523.

The record of new and supplemental repayment contracts does not tell the full story. A new development of the past 5 years has been the execution of water-service contracts as authorized by the Reclamation Project Act of 1939. This new type of contract marks an important step in the financing of reclamation projects. The first of these contracts was executed in 1945 with the Southern San Joaquin municipal utility district, Central Valley project. Since that time, water service contracts have been executed with more than a score of Central Valley project districts. Generally, the provision for water service is included in a contract which also provides for the repayment of the cost of constructing a distribution system, if such a system is to be constructed. Execution of water service contracts with water users' organizations of the Missouri River Basin project began in 1947. It is estimated that more than $50 million in construction costs will be returned to the United States through the construction component in water service charges of contracts executed to date for the Central Valley, Missouri River Basin, and Cachuma projects.

Furnishing of water from reclamation projects for municipal and industrial purposes likewise has involved the execution of a number of contracts in the postwar period. Legislation enacted in 1906, 1920, and 1939 governs the terms of contracts for this water use, which is growing in importance as the urban population and industrial activities make increased demands on the limited water supplies of the West.

Contract rates for this type of water use generally provide for substantially higher water charges and payments than in the case of irrigation. Contracts involving water for municipal and industrial purposes have been executed for the following projects: Central Valley, Cachuma, Salt River, Tucumcari, Yuma, Gila, Rio Grande, Missouri River Basin, Lewiston Orchards, Provo River, Milk River, and North Platte.

Substantial progress has been made by the Bureau of Reclamation in the negotiation of amendatory repayment contracts with irrigation districts and water users' organizations in need of financial adjustment. Beginning in 1946 the Bureau initiated an intensive program to overcome these financial problems. Economic and payment capacity surveys were made to determine remedial measures required. Pursuant to the provisions of section 7 of the Reclamation Project Act of 1939, amendatory repayment contracts with 14 irrigation districts and water users' organizations on 11 Federal reclamation projects in 8 Western States were transmitted to the Eighty-first Congress for consideration and legislative action. These contracts, involving the repayment of $34,172,508 were approved by the Congress, have been executed and are now in force. Negotiation of amendatory repayment contracts involving an additional 12 irrigation districts and the repayment of $25,038,700 have been completed and the contracts have been transmitted to the Congress where they now await approval. In addition to the above, amendatory repayment contracts have been executed with four districts involving a repayment obligation of $10,015,355. Amendatory repayment contract negotiations are under way with 12 additional districts.

Finally, a recent addition to the repayment responsibilities of the Bureau of Reclamation was the authorization in 1949 by the Congress of the program for rehabilitation and betterment of existing projects. Surveys had indicated the rundown condition of some projects. This condition was attributable in large measure to the inability of the water users, during the depression years of the 1930's, to meet the cost of an adequate operation and maintenance program, and during the war years to the scarcity of labor and materials necessary for adequate

maintenance of irrigation works. The rehabilitation and betterment program was adopted in realization that if these projects were to operate on an efficient and economical basis and reimburse the United States for obligations incurred, it would be necessary to rehabilitate irrigation facilities. All funds allotted for this purpose are reimbursable through repayment arrangements prescribed by the act of October 7, 1949 (63 Stat. 724), as amended by the act of March 3, 1950. Repayment contracts involving the return of the cost of rehabilitation and betterment work, have been executed with water users' organizations involving a total maximum repayment obligation of $17,881,933.

There follows a detailed summary of water service and repayment contract activities that took place during fiscal year 1951 and through the period ending January 1, 1952.

NEW CONTRACTS

A. New contracts were executed during fiscal year 1951 and for the period ending January 1, 1952, with the following water users' organizations:

Cachuma project, California
1. City of Santa Barbara and Montecito County water district (1951 temporary water contracts)

Central Valley project, California
2. Buckeye irrigation district
3. Chowchilla water district
4. Contra Costa County water district
5. Delano-Earlimart irrigation district
6. Exeter irrigation district
7. Lindsay-Strathmore irrigation district
8. Lower Tule River irrigation district
9. Madera Irrigation District
10. Saucelito irrigation district
11. Stone Corral irrigation district
12. Terra Bella irrigation district
13. Tulare irrigation district
14. 1950–51 interim contracts (various districts)

Colorado-Big Thompson project, Colorado
15. Northern Colorado Water Conservancy District (2 contracts)

Middle Rio Grande project, New Mexico
16. Middle Rio Grande Conservancy District

Minidoka project, Idaho
17. Burley irrigation district (O. and M. transfer)

Mirage Flats project, Nebraska
18. Mirage Flats irrigation district

Missouri River Basin project
19. Angostura irrigation district, South Dakota
20. Frenchman-Cambridge irrigation district, Nebraska
21. 1951 Interim contracts—Frenchman-Cambridge division and Heart River unit
22. Kansas-Bostwick irrigation district No. 2, Kansas
23. Fort Clark irrigation district

North Platte project
24. City of Casper, Wyo., and Standard Oil Co. (municipal water)

Rio Grande project, New Mexico
25. City of El Paso (municipal water)

Tucumcari project, New Mexico
26. City of Tucumcari (municipal water)

Yuma project, Arizona-California
27. Yuma County Water Users' Association

B. The following new contracts have been approved as to form by the district and the Department and are now awaiting execution by the district and/or the United States;

Cachuma project, California
1. Goleta County water district

Central Valley project, California
2. Ivanhoe irrigation district (amendatory contract-increase from $1,589,807 to $2,276,000)
3. Lindmore irrigation district (amendatory contract—increase from $4,529,760 to $5,000,000)

4. Lindsay-Strathmore irrigation district (amendatory contract—increase from $1,443,000 to $2,740,000)
5. Porterville irrigation district.

Deschutes project, Oregon
6. City of Culver, Oreg.
7. City of Metolius, Oreg.

Gila project, Arizona
8. North Gila Valley irrigation district
9. Wellton-Mohawk irrigation and drainage district
10. Yuma testing station, Department of the Army.

Klamath project, Oregon-California
11. Midland District Improvement Co.

Missouri River Basin project
12. Keyhole unit, Belle Fourche irrigation district, South Dakota
13. Owl Creek irrigation district, Wyoming

Yuma auxiliary project
14. Unit B irrigation and drainage district, Arizona

AMENDATORY CONTRACTS

A. Amendatory contracts were executed during fiscal year 1951 and through the period ending January 1, 1952, with the following water users' organizations:

Boise project, Idaho-Oregon:
1. Boise-Kuna irrigation district.
2. Nampa and Meridian irrigation district.
3. Wilder irrigation district.

Columbia Basin project, Washington:
4. East Columbia Basin irrigation district.
5. South Columbia Basin irrigation district.
6. Quincy Columbia Basin irrigation district.

Hyrum project, Utah:
7. South Cache Water Users' Association.

Ogden River project, Utah:
8. Ogden River Water Users' Association.

Owyhee project, Oregon-Idaho:
Supplemental repayment contract (transfer O. and M.).
9. Gem irrigation district.
10. Ridgeview irrigation district.
11. Owyhee irrigation district.
12. Ontario-Nyssa irrigation district.
13. Advancement irrigation district.
14. Payette-Oregon slope irrigation district.
15. Crystal irrigation district.
16. Bench irrigation district.
17. Slide irrigation district.

Rio Grande project, New Mexico:
18. Hudspeth County Conservation and Reclamation District No. 1.

Yuma project, Arizona-California:
19. Sale of water to Mexican interests.

B. Amendatory contract negotiations with the following water users' organizations have been completed and pursuant to section 7 of the Reclamation Project Act of 1939 the contracts have been transmitted to the Eighty-first Congress for approval:

Frenchtown project, Montana:
1. Frenchtown irrigation district.

Milk River project, Montana:
2. Glasgow irrigation district.
3. Malta irrigation district.

Owyhee project, Oregon-Idaho:
4. Advancement irrigation district.
5. Bench irrigation district.
6. Crystal irrigation district.
7. Gem irrigation district.
8. Ridgeview irrigation district.
9. Owyhee irrigation district.
10. Payette-Oregon slope irrigation district.
11. Ontario-Nyssa irrigation district.
12. Slide irrigation district.

C. Amendatory repayment contracts have been approved as to form with the following water users' organizations and are now awaiting execution by the organization and/or the United States:

Boise project, Idaho-Oregon:
1. Big Bend irrigation district.
2. Settlers irrigation district.
North Platte project, Wyoming-Nebraska:
3. Gering and Fort Laramie irrigation district.
4. Goshen irrigation district.
5. Pathfinder irrigation district.

D. Amendatory repayment contract negotiations currently are underway with the following water users' organizations:

Boise project, Idaho-Oregon:
1. Black Canyon irrigation district.
Deschutes project, Oregon:
2. North unit irrigation district.
Kendrick project, Wyoming:
3. Casper-Alcova irrigation district.
North Platte project, Wyoming-Nebraska:
4. Northport irrigation district.
Umatilla project, Oregon:
5. Hermiston irrigation district.
6. West extension irrigation district.
Yakima project, Washington:
7. Roza irrigation district.

REHABILITATION AND BETTERMENT

A. Repayment arrangements covering rehabilitation and betterment work were completed during fiscal year 1951 and through the period ending January 1, 1952, with the following water users organizations:

Grand Valley project, Colorado:
1. Grand Valley Water Users Association.
Okanogan project, Washington:
2. Okanogan irrigation district.
Salt River project, Arizona:
3. Salt River Water Users Association.
Sun River project, Montana:
4. Fort Shaw irrigation district.

Mr. LINEWEAVER. We are making considerable progress. 98 percent of the payments due have been made on time.

WRITE-OFFS OF REPAYMENT CONTRACT OBLIGATIONS

Mr. NORRELL. There have been no moneys canceled out by acts of Congress during the last fiscal year, or whatever the accounting period is?

Mr. LINEWEAVER. I will have to check that, Mr. Norrell. I am not quite sure whether there were acts of Congress in that respect.

Mr. NORRELL. Will you check that and put your answer in the record at this point?

Mr. LINEWEAVER. Yes, sir; we will be glad to do that.

(The information requested is as follows:)

During fiscal years 1951 and 1952 to date, there have been no write-offs or downward adjustments of any obligations to be paid under repayment contracts with water users on Federal reclamation projects.

RENEGOTIATIONS OF CONTRACTS

Mr. NORRELL. Have there been any renegotiations of contracts?

Mr. LINEWEAVER. Yes, sir. Those renegotiations are covered in the statement I have submitted.

Mr. NORRELL. They are shown?

Mr. LINEWEAVER. Yes, sir.

Mr. NORRELL. That will then give us a complete statement of the repayment contracts, will it not?

Mr. LINEWEAVER. Yes, sir; with that information in the record.

Mr. EATON. The statement indicates that there are more than one-half billion dollars of contracts that we have with the water users for repayment to the United States.

STATUS OF REPAYMENT ON PROJECTS

Mr. LINEWEAVER. Mr. Morrell, if you would like to have it, we have a tabulation here showing current status of repayment on each project, what percentage of the amounts due have been paid.

Mr. NORRELL. Is that very long?

Mr. LINEWEAVER. About four pages.

Mr. NORRELL. I think it would be informative to have that in there, too.

Mr. KIRWAN. All right, we will insert it in the record.

(The tabulation referred to is as follows:)

Statement of construction and rehabilitation charges paid and unpaid as of June 30, 1951

State and project	Total value of contracted repayment	Fiscal year 1951 matured charges	Fiscal year 1951 matured charges paid	Total charges due and unpaid	Percent repaid
Total prior years	$506,834,633	$89,574,319	$88,656,777		99.0
Construction and rehabilitation charges accrued during fiscal year 1951:					
Arizona: Salt River		130,886	130,886		100.0
Arizona-California: Yuma (including Yuma auxiliary)	−30,562	100,780	112,941	$3,233	99.9
California: Orland	25,270	40,745	42,860	6,870	99.5
Colorado:					
Colorado-Big Thompson	889,000				
Fruitgrowers Dam	−14,759	2,500	2,500		100.0
Grand Valley		65,316	70,892		100.0
Pine River		23,056	18,750	34,446	81.3
Uncompahgre		30,000	30,000		100.0
Idaho:					
Boise		876,121	829,676	79,259	99.0
Boise Anderson Ranch	4,233	32,489	32,114	375	99.0
Minidoka	−58,332	389,187	368,466	20,721	99.8
Rathdrum Prairie: Post Falls		4,750	4,750		100.0
Montana:					
Bitter Root		17,635	17,635		100.0
Frenchtown		5,000	5,000	5,000	86.0
Huntley		34,726	34,726		100.0
Milk River	102,994	147,623	86,984	319,327	68.8
Sun River		98,964	98,964		100.0
Montana-North Dakota: Lower Yellowstone	−32,361	85,250	85,250		100.0
Nebraska: Mirage Flats	846,300				
Nebraska-Wyoming: North Platte		506,323	460,873	147,810	98.4
Nevada:					
Humboldt		33,902	33,902		100.0
Newlands		86,087	86,159	6	99.9
Truckee Storage		25,000	25,000		100.0

Statement of construction and rehabilitation charges paid and unpaid as of June 30, 1951—Continued

State and project	Total value of contracted repayment	Fiscal year 1951 matured charges	Fiscal year 1951 matured charges paid	Total charges due and unpaid	Percent repaid
Construction and rehabilitation charges accrued during fiscal year 1951—Continued					
New Mexico: Carlsbad		$64,117	$64,117		100.0
New Mexico-Texas: Rio Grande		223,184	223,184		100.0
Oklahoma: W. C. Austin	$182,854	72,158	60,000	$12,158	86.1
Oregon:					
Baker		5,769	5,769		100.0
Burnt River		22,490	15,007	7,483	96.0
Deschutes		13,022	13,022		100.0
Umatilla		31,978	−6,525	461,136	51.0
Vale		73,664	73,664		100.0
Oregon-California: Klamath	422	131,005	126,558	8,445	99.6
Oregon-Idaho: Owyhee		419,540	217,855	210,334	83.0
South Dakota:					
Belle Fourche	−1,399,449	72,130	72,130		100.0
Rapid Valley	−600,000	25,000	25,000		100.0
Texas: Balmorhea		2,639	2,639		100.0
Utah:					
Hyrum	14,046	13,277	15,861		100.0
Moon Lake		39,807	39,807		100.0
Newton		8,750	8,750		100.0
Ogden River	81,827	64,480	74,480		100.0
Salt River Basin		88,193	88,193		100.0
Sanpete		9,334	11,115		100.0
Scofield		5,400	5,400		100.0
Strawberry Valley		67,524	67,524		100.0
Washington:					
Okanogan		12,802	9,877	6,401	96.0
Yakima	−81,522	375,448	378,896	1,938	99.9
Wyoming:					
Eden	1,500,000				
Riverton	283,666	79,978	79,978		100.0
Shoshone	162,453	128,644	128,293	351	99.9
Subtotal, construction	508,710,713	94,360,992	93,035,699	1,325,293	
Rehabilitation and betterment:					
Total, prior years	12,235,551	36,808	29,070		79.0
Arizona: Salt River	1,361,450	2,677	2,677		100.0
California: Orland	4,000	13,085	13,088	299	98.9
Montana: Milk River	238,500				
Nebraska-Wyoming: North Platte		12,275	14,279	5,432	85.0
South Dakota: Belle Fourche	−400,000				
Wyoming: Riverton	−150,000				
Subtotal, rehabilitation and betterment	13,289,501	64,845	59,114	5,731	91.2
Grand total	522,000,214	94,425,837	93,094,813	1,331,024	98.6

ANALYSIS OF INCREASES

Mr. JACKSON. Mr. Lineweaver, I wonder if you could submit for the record a breakdown as to the number of employees on the various increases in operation and maintenance and the nature of their employment.

Mr. LINEWEAVER. Yes, sir.

Mr. JACKSON. I don't want to unnecessarily encumber the record, but I think it would be helpful to find out just where these increases are, because the question will come up on the floor as to how many employees are involved.

Mr. LINEWEAVER. We will give you the best figures that are available at the last report, which would probably be December 1.

Mr. JACKSON. The basis for your increase in these various operation and maintenance items.

Mr. LINEWEAVER. Let me see if I understand you correctly. You want to know how many additional employees result from this increase in the operation and maintenance estimates?

Mr. JACKSON. Broken down by the projects that have increases in operation and maintenance expenses.

Mr. LINEWEAVER. Yes; I think we can do that.

Mr. JACKSON. And what the balance of the operation and maintenance increases consist of.

Mr. LINEWEAVER. You mean the percentage of personal services and how much there is in materials, supplies, and equipment?

Mr. JACKSON. Yes. Someone asks why, when they see a big increase in a project, that is necessary, what does that involve? I think we ought to have that information in the record.

Mr. LINEWEAVER. I think we can fix that up for you.

(The information requested is as follows:)

Analysis of increases in fiscal year 1953 operation and maintenance program over fiscal year 1952 by objective code classification and explanation of 01 Personal service increases

	01	02	03	04	05	06	07	08	09	10	15	Net increase
Central Valley project, California	$1,020,606	$1,642	$556	$1,829	$1,448	$170	−$93,085	−$23,087	$13,726	.....	$511	$924,316
The increase of $1,020,606 in personal services is due primarily to the transfer from "Operation and maintenance during construction" to "Operation and maintenance" of 85 percent of the 200 additional employees required including 15 transmission-line employees for new crew at Elverta and Orland; 15 service employees (janitors, clerks, gardeners, laborers, typists); 18 operating and 12 maintenance employees at Tracy pumping plant; 10 part-time positions in Shasta Dam division for visitor services (guides, elevator operators, etc.); 50 operation and maintenance employees on Delta-Mendota Canal; 50 operation and maintenance employees on Lindsay and Delano section of the Friant-Kern Canal; 10 service employees (gardeners, janitors, laborers, etc.) at Friant Dam.												
Colorado-Big Thompson project, Colorado	123,876	6,000	2,000	3,500	−31,000	100	142,200	53,824	13,700	$12,000	100	326,300
The increase of $123,876 is occasioned by transferring cost of 18 dispatching employees from the Kendrick and North Platte projects to the Colorado-Big Thompson project with a corresponding decrease in personnel on the Kendrick and North Platte projects; the training of 16 operators for the Flatiron power plant and Beaver Creek substation; and 6 additional patrolmen and laborers to perform essential maintenance on new transmission and irrigation facilities.												
Mancos project, Colorado	542	.....	.....	.....	15	.....	100	.....	93	.....	.....	750
The increase of $542 is required for temporary seasonal employees to perform additional inlet canal maintenance work.												
San Luis Valley project, Colorado	3,352	50	150	956	400	.....	3,892	500	.....	.....	.....	9,300
Operation of the Platoro Reservoir and Dam will be initiated during fiscal year 1953 and the increase of $3,352 in personal services represents the salary of 1 employee to be paid from operation and maintenance funds during a part of the year.												
Boise project, Idaho	25,483	.....	500	50	121,697	.....	−8,223	7,463	4,890	5,000	40	156,900
Increase of $25,483 in personal services due to normal within-grade salary increases and increases in part-time and temporary employees to perform additional needed spring and fall maintenance of irrigation facilities.												
Minidoka project, Idaho	17,292	.....	.....	.....	.....	.....	10,308	−4,000	−5,000	−3,000	.....	15,600
Increase of $19,292 in personal services represents cost of periodic salary increases.												
Rathdrum project, Idaho, Post Falls unit	.....	.....	.....	.....	.....	.....	200	.....	.....	.....	.....	200

Hungry Horse project, Montana	149,000	1,500	750	900	200	100	3,000	35,630	4,000		20	195,100
The increase of $149,000 in personal services represents the addition of 31 positions due to initial operation and maintenance of 2 of the 4 generating units to be installed in the Hungry Horse power plant and transmission and distribution facilities.												
Milk River project, Montana	150											150
The increase of $150 in personal services represents the cost of periodic salary increases and no additional personnel.												
Missoula Valley project, Montana, Big Flat unit	60							440				500
The increase of $60 represents the cost of periodic salary increase.												
Sun River project, Montana, Greenfield division	68											68
The increase of $68 in personal services represents the cost of periodic salary increases and no additional personnel.												
North Platte project, Nebraska-Wyoming	10,900		−200			−100	−6,000	−15,000	−2,000	22,200		9,800
The net increase of $10,900 in personal services after considering the transfers of certain dispatching costs to the Colorado-Big Thompson project represents the requirement for 2 power-plant operators, 1 laborer, 1 electrician, and 1 lineman to perform essential maintenance work which was deferred due to the 1952 personnel limitation.												
Rio Grande project, New Mexico-Texas	125,471						148,016	114,913	52,800			441,200
Approximately $55,000 of the $125,471 increase in personal services represents the transfer of personnel from "Construction and rehabilitation" to "Operation and maintenance" due to completion of construction during 1953, and $10,000 for additional personnel to service the expanded power transmission system to be completed in 1953. The remaining increase of $60,471 will provide for periodic salary increases, wage-board increases, and grade promotions for underrated employees.												
W. C. Austin project, Oklahoma	1,558	12	88	74	522	200		10,046	−2,500			10,000
The increase of $1,558 in Personal Services is to cover periodic salary increases.												
Deschutes project, Oregon	5,568							−11,068	18,500			13,000
The increase of $5,568 will provide seven additional temporary employees for 3 months to repair work before the 1953 operating season in Mud Springs area.												
Vale project, Oregon	114							−44	5			75
The increase of $114 represents periodic salary increase.												
Klamath project, Oregon-California			1,000	1,000	1,000			300	20,700			24,000
Rapid Valley project, South Dakota	100											100
The $100 increase in personal services represents the cost of periodic salary increase.												
Columbia Basin project, Washington	607,800	5,000	20,000	1,000		1,000	34,000	198,600	255,000	−100,000		1,022,400
The increase of $607,800 in personal services is a net figure made up of a reduction of 38 per annum employees which will be accomplished by contracting janitorial service, and an increase of 112 unclassified employees, necessitated by the establishment of a permanent power maintenance organization as well as the commencement of large-scale irrigation operations. The number of unclassified employees also include a small increase in service operation positions such as supply, equipment maintenance, etc.												

Analysis of increases in fiscal year 1953 operation and maintenance program over fiscal year 1952 by objective code classification and explanation of 01 Personal service increases—Continued

	01	02	03	04	05	06	07	08	09	10	15	Net increase
Yakima project, Washington	$4,404				$5,000		$845	$8,381	−$9,230			$9,400
The increase of $4,404 represents cost of periodic salary increases.												
Shoshone project, Wyoming	4,850											4,850
The $4,850 increase in personal services represents the cost of periodic salary increases.												
Operation of Boulder City, Nev	390,000	2,000	2,000	1,500	10,000	500	90,000	78,000	15,000		1,000	590,000
The increase of $390,000 in personal services for the operation of Boulder City does not represent an increase in the "Operation and maintenance program" but merely a segregation of operations from the Boulder Canyon project to a municipal organization. Included in the personal service amount are estimates for a city manager, executive assistant, and staff comprising the office of city management; members of the police and fire departments; employees for the health and sanitation, maintenance, utilities, and recreation departments.												
Colorado River from work and levee system	10,450											10,450
The increase of $10,450 for personal services does not represent any additional employees, but only extended employment of present dredging forces for a longer period of time during 1953.												
Soil and moisture conservations	1,943						26,557	500	500	46,500		76,000
The increase of $1,943 in personal services represents the cost of periodic salary increases.												

PRESENT POWER OUTPUT

Mr. JACKSON. How much power are you putting out at the present time on all these projects, 4 million kilowatts?

Mr. MCPHAIL. At the present time there is roughly 4,200,000 kilowatts in operation.

Mr. JACKSON. Of that total, how much comes from the Columbia Basin project?

Mr. MCPHAIL. The Columbia Basin project is slightly less than half of that total.

(Discussion off the record.)

Mr. JACKSON. Just slightly less than half of the entire output under the jurisdiction of the Bureau of Reclamation comes from the Grand Coulee Dam project, technically known as the Columbia Basin project?

Mr. MCPHAIL. I was talking about the kilowatts installed. Actual peak load, due to the peaking ability of the Grand Coulee units, would make the ratio just about half and half. Half is coming from Grand Coulee.

Mr. JACKSON. On a peaking determination the Grand Coulee project turns out a little over half or about half?

Mr. MCPHAIL. I would say just a little over half.

(Discussion off the record.)

Mr. JACKSON. Can you get the figures for the record?

Mr. MCPHAIL. Yes, sir.

Mr. JACKSON. I think that will be helpful.

(The information requested is as follows:)

Noncoincidental peak output during December 1951, the highest monthly peak, for the Bureau of Reclamation was approximately 4,421,000 kilowatts, of which 2,226,000 kilowatts was from Grand Coulee power plant.

POWER PRODUCTION AND REVENUE OF GRAND COULEE

Mr. JENSEN. Since you have brought up the subject of power production, you say the Grand Coulee-Bonneville area produces almost half the kilowatts produced in the Reclamation Bureau's entire facilities?

Mr. MCPHAIL. Just Grand Coulee alone, Mr. Jensen, does that.

Mr. JENSEN. Just Coulee alone?

Mr. MCPHAIL. Yes, sir.

Mr. JENSEN. How about dollarwise, do you have a comparison of that as to revenue to the Government? How does that compare?

Mr. MCPHAIL. It is rather difficult to answer that question, Mr. Jensen, since the Bureau does not market the power from Grand. Coulee, but turns it over to the Bonneville Power Administration The revenue comes from that marketing operation.

Mr. JENSEN. I am very well aware of that fact. Since the question has been brought up, I am trying to find out what portion of the revenue turned over to the United States Treasury comes from Grand Coulee Dam. You say you cannot answer it. The answer is that because of the 2-mill rate, which is about one-third, possibly between one-half and one-third the rate in other Reclamation Bureau projects, it will make quite a different looking picture when we talk about revenue instead of talking about production.

(There was discussion off the record.)

Mr. JENSEN. Mr. Jackson asked for the information to be inserted in the record relative to the increased percentage you are asking for each one of these projects. I had intended to ask for the same information, so it will not be necessary for me to ask for that.

You, Mr. Lineweaver, are the water boy or used to be anyway, for the entire Interior Department.

Mr. LINEWEAVER. Just the Bureau of Reclamation. I disclaim responsibility for any other activity. Just limit my sphere to Reclamation please.

ADVANCE PAYMENTS BY WATER USERS

Mr. JENSEN. I am going to ask the same question that I have asked for many years. Are you encouraging the water users to make payments in advance whenever they can?

Mr. LINEWEAVER. Yes, sir.

Mr. Jensen, I may say that we have a conference of Mr. Eaton's regional O. and M. supervisors in Washington this week and they are being admonished to work to improve the financial returns from the various projects and to seek ways and means to reflect in the increased payments any improved financial position on the part of the irrigators. We hope that will bear fruit in the years to come. We feel that we have improved the situation to a material degree in the last few years.

TIME REQUIRED TO REPAY

Mr. JENSEN. Here we have, as an example, a project that costs $10 million. The water users are obligated to pay $10 million over a period of 50 years. If those water users were able to pay that off in 20, they would save interest and the Government would have the extra money to use. By paying it off, say, in 20 years, we could get the Government out of business possibly in not over 25 years on many of these projects instead of carrying it on and on. Possibly in 25 years the water users will say, "Now, we will take over the whole thing and take care of the operation and maintenance." Just let the Government wash its hands off that project.

Certainly we have no project that would take 20 years to complete. Any irrigation project that I know of that would take 20 years to complete, except maybe some of the projects now on the Missouri River as a whole—but yet there are irrigation districts in the Missouri Valley that are handled as separate entities that certainly could pay off in much shorter time.

So I certainly hope that we can work toward that end in good years like we have been having.

I had an irrigator tell me that he would like to pay off in 10 years at the rate he was producing and the revenue he was making each year. He would like to have his all paid off in 10 years. He said he could do it.

So certainly it is something to work toward.

Mr. LINEWEAVER. I may make this comment. There have been a number of individual water users who have paid up their full assessment a good while before the repayment period for the entire project was reached.

Mr. EATON. On one of the recent contracts which we worked out with one of the older projects, under that contract they agreed to pay us out in 40 years, but they would pay each year according to the value of the crops that they were producing. This past year their payment was just exactly double the 40-year rate.

Mr. JENSEN. Wonderful.

Then there is something else that we can do. The more money we collect in advance, the more could then be used in other areas where they need irrigation and reclamation. The Congress, as I have said before, would feel justified in taking that money, at least some of it, and putting it on other irrigation projects that people are clamoring for. I think it is one of the most important things we can do, gentlemen.

REPAYMENT RATE BASED ON CROP RETURNS WHERE POSSIBLE

Mr. LINEWEAVER. Wherever it is possible, Mr. Jensen, we are putting the repayments on the sliding-scale basis, based on the crop returns, just as Mr. Eaton explained. In good years we get more returns from it than we do in poor years.

ROOM FOR ADDITIONAL IRRIGATION PROJECTS

Mr. JENSEN. I have in mind, gentlemen, the Estancia Valley in New Mexico, a beautiful valley. All it needs is water, and you can raise anything. But not one bit of water has been obtained there through a reclamation project, to my knowledge.

It is a big valley, a beautiful valley. If we could afford it, that valley should have water on it by all means.

I know of other valleys comparable to that valley, but we do not feel justified in spending the money. But we are not putting water on the land there.

Many of these valleys are where people should have irrigation and reclamation today. We have just piles and piles of young people from the State of Iowa in the Middle West who cannot buy a farm. They are too high. It is just prohibitive. They are sons of farmers, good farmers. The only opportunity they are going to have, most of them, to own a farm, is in the 17 Western States where they can go out and buy land for $30, $40, $50, $60, or $75 an acre, and then have an irrigation project coming in on the land. They can then pay their irrigation fees and things that you people demand, and they will be able to own a farm. We need the production. We are going to need it awfully bad one of these days when the Good Lord doesn't furnish us with all the water and sunshine, as he has for the past 9 years.

If we can have more revenue and put it in reclamation funds, we will be more justified in approving these irrigation and relcamation projects.

I think it is very important.

EXPENDITURES FOR IRRIGATION AND ACREAGE AFFECTED

Mr. FENTON. While this discussion has been going on, it comes to my mind that we are paying a lot of money for irrigation. We are paying a lot of money annually to irrigate and bring lands into production.

Mr. LINEWEAVER. Yes, sir.

Mr. FENTON. I wonder, Mr. Lineweaver, if you could tell us just how much money has been paid out, say in the last 5 to 10 years for irrigation.

Mr. LINEWEAVER. I don't have the figures before me, but I can get it and insert it into the record—the irrigation and power, et cetera.

Mr. FENTON. All I want is the amount of money we paid out for irrigation in this country and how many acres we put into production and how much it amounts to in money a year.

Mr. LINEWEAVER. I can give you the figures on the crop results now.

In 1950 the total crop production from 5,189,463 acres was valued at $578,237,709.

I will be glad to submit for the record a statement I have and an accompanying tabulation showing the acreages in cultivation and gross crop values, 1949 and 1950, by each project.

(The statement and tabulation referred to are as follows):

CROP PRODUCTION

For the sixth consecutive year, crop production on farms receiving full or supplemental irrigation water supplies from federally constructed reclamation projects was in excess of one-half billion dollars. For the seventh consecutive year, the value of crops grown exceeded $100 an acre. Preliminary estimates on the value of the 1951 crop, which has not yet been fully harvested or marketed, indicate that for the first time in reclamation history the value of an annual crop has exceeded $600 million reaching $654,020,000. The cumulative value of crops grown since water was first supplied from reclamation projects in 1906 totals $7,816 million. These same preliminary reports estimate average gross crop returns for 1951 at $120.88 per acre with reported crop values ranging from $21.86 for the Pine River project in Colorado to $479.54 for the Coachella division of the All-American Canal system in California.

Traditional crop patterns characterized 1951 operations and over 65 percent of the total crop acreage was planted to hay, other forage and cereals, with the remaining acreage made up of general field crops and high quality fruits, nuts, and vegetables.

Preliminary estimates for the 1951 crop indicate that the volume of crops produced for the second consecutive year will exceed 16 million tons. Approximately 35 percent of this tonnage was made up of fruits, nuts, and vegetables, 30 percent of hay and forage, and the remainder of miscellaneous field crops and cereals.

Figures on the 1949 and 1950 crops are presented on the following table:

Comparative summary of acreages in cultivation and gross crop values, 1949 and 1950

Project	Net area in cultivation		Total gross crop values		Average value per acre	
	1949	1950	1949	1950	1949	1950
	Acres	*Acres*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
All-American Canal, Calif.:						
Coachella division	24,483	31,000	16,103,356	13,437,977	657.74	433.48
Imperial irrigation district	440,000	440,000	72,638,099	56,931,231	165.09	129.39
W. C. Austin, Oklahoma	36,255	46,856	3,087,440	3,460,601	85.16	73.86
Baker, Oreg	7,255	7,255	261,355	212,080	36.02	29.23
Balmorhea, Tex	7,411	6,938	795,723	1,090,452	107.37	157.17
Belle Fourche, S. Dak	52,409	55,472	2,095,481	2,002,602	39.98	36.10
Bitter Root, Mont	16,482	16,492	510,878	548,011	31.00	33.23
Boise, Idaho-Oregon	299,767	306,644	28,065,257	25,744,938	93.62	83.96
Buffalo Rapids, Mont	20,900	21,345	931,113	1,069,148	44.55	50.09
Buford-Trenton, N. Dak	7,670	7,625	321,093	373,460	41.86	48.98
Burnt River, Oreg	15,260	15,260	446,340	456,960	29.25	29.94
Carlsbad, N. Mex	20,988	19,007	3,039,814	3,281,474	144.84	172.65
Central Valley, Calif	322,870	504,962	48,232,869	103,013,738	149.39	204.00
Columbia Basin, Wash	2,411	4,353	244,437	527,328	101.38	121.14
Deschutes:						
North unit, Oregon	45,067	46,523	5,037,085	5,224,381	117.69	112.30
Central Oregon irrigation district	42,531	42,784	5,355,880	3,925,398	125.93	91.75
Frenchtown, Mont	2,949	3,510	134,512	138,750	45.61	39.53
Fruitgrowers Dam, Colo	2,134	2,177	231,537	250,609	108.50	115.12
Gila, Ariz	13,424	13,845	1,532,549	1,497,175	114.16	108.14
Grand Valley, Colo	36,545	37,111	2,970,236	4,459,933	81.28	120.18
Humboldt, Nev	25,028	25,414	1,520,841	1,574,894	60.77	61.97
Huntley, Mont	25,701	25,777	1,560,897	1,467,071	60.73	56.91
Hyrum, Utah	5,603	5,760	319,526	340,674	57.03	59.14
Intake, Mont	403	435	23,563	24,258	58.47	55.77
Kendrick, Wyo	5,197	6,981	123,580	172,622	23.78	24.73
Klamath, Calif.-Oreg	199,659	203,046	18,308,161	17,386,810	91.70	85.63
Lewiston Orchards, Idaho		2,770		656,950		237.17
Lower Yellowstone, Montana-North Dakota	49,070	49,114	2,859,166	2,776,052	58.27	56.52
Mancos, Colo	6,457	6,970	208,248	279,889	32.25	40.16
Milk River, Mont	79,121	75,321	3,616,005	3,578,084	45.70	47.50
Minidoka, Idaho-Wyoming	982,921	988,056	66,736,679	64,020,590	67.90	64.79
Mirage Flats, Nebr	11,163	11,092	411,001	676,179	36.82	60.96
Missoula Valley, Mont	414	636	9,340	16,869	22.56	26.52
Missouri River Basin project: Savage unit, Yellowstone division, Montana		2,016		49,417		24.51
Moon Lake, Utah	58,834	60,044	1,103,697	1,298,362	18.76	21.62
Newlands, Nev	52,106	55,685	2,784,202	2,087,863	53.43	37.49
Newton, Utah	2,230	1,884	130,759	124,922	58.64	66.31
North Platte, Nebraska-Wyoming	329,672	330,682	18,983,884	18,881,576	57.58	57.10
Ogden River, Utah	15,864	15,929	1,335,462	1,253,468	84.18	78.69
Okanogan, Wash	3,824	3,955	723,687	1,171,948	189.25	296.32
Orland, Calif	16,706	17,075	1,504,794	1,792,928	90.08	105.00
Owyhee, Idaho-Oregon	108,232	111,115	13,513,386	11,612,339	124.86	104.51
Pine River, Colo	32,679	32,317	785,303	789,847	24.03	24.44
Preston Bench, Idaho	4,144	4,150	309,076	303,197	74.58	73.06
Provo River, Utah	39,120	42,158	3,447,329	2,895,291	88.12	68.68
Rapid Valley, S. Dak	5,974	8,406	175,974	202,166	29.46	24.05
Rathdrum Prairie, Idaho:						
Hayden Lake unit	2,754	514	125,366	31,281	45.52	60.86
Post Falls unit	830	2,108	48,380	132,371	58.29	62.79
Rio Grande, New Mexico-Texas	176,903	176,556	44,850,501	49,863,819	253.53	282.42
Riverton, Wyo	43,646	49,059	2,093,005	2,086,549	47.95	42.53
Salt River, Ariz	307,228	309,954	44,566,202	60,700,112	145.06	195.84
Sanpete, Utah	11,651	11,546	360,409	318,582	30.93	27.59
Scofield, Utah	15,009	15,009	781,576	817,776	52.07	54.49
Shoshone, Montana-Wyoming	65,021	73,034	2,975,278	3,321,120	45.76	45.47
Strawberry Valley, Utah	43,288	41,864	2,418,953	2,592,677	55.88	61.93
Sun River, Mont	85,860	86,047	2,604,750	2,144,000	30.34	24.92
Truckee Storage, Nevada	23,235	23,213	1,494,467	1,564,168	64.32	67.38
Tucumcari, N. Mex	22,961	31,563	1,177,884	1,110,368	51.30	35.18
Umatilla, Oreg	23,339	23,151	1,013,121	1,193,437	43.41	51.55
Uncompahgre, Colo	72,795	73,427	4,016,532	3,724,621	55.18	50.73
Vale, Oreg	30,070	31,150	2,194,767	1,839,715	72.99	59.06
Weber River, Utah	90,801	90,861	9,394,389	7,390,754	103.46	81.34
Yakima, Wash	365,172	376,020	48,432,706	64,978,696	132.63	172.81
Yuma, Ariz	58,738	58,440	15,251,108	11,347,157	259.65	194.17
Grand total	4,916,234	5,189,463	516,329,008	578,237,709	105.03	111.43

Mr. FENTON. What I am vitally interested in is, how much money we pay out annually for irrigation.

Mr. LINEWEAVER. Yes, sir, I will submit that for the record.

Mr. FENTON. And the revenues derived from it.

Mr. LINEWEAVER. Yes, sir.

(The information requested is as follows:)

COSTS OF AND RETURNS FROM IRRIGATION

During Reclamation's first half century, a little over $694,542,000 has been spent for the irrigation features of Federal reclamation projects. In addition to this amount, irrigation has an equity in certain joint project features such as dams and reservoirs which are operated for flood control, power, improvement of navigation, and other purposes. During the postwar years, the accelerated reclamation program has boosted the annual expenditures for irrigation features to amounts which in some years have exceeded $100 million. In fiscal year 1951 the amount available for irrigation construction was approximately $103 million. In fiscal year 1952 the amount was reduced to approximately $90 million and the budget now under consideration proposes the expenditure of a little over $64 million for irrigation works. The first two of these latter figures are included in the $694 million total previously given.

The importance of reclamation in the development of the West and the Nation has become increasingly important over the years since irrigation water deliveries were first made through federally built works. In 1909 the acreage irrigated on reclamation projects made up only 2.9 percent of the irrigated land in the 17 Western States. In 1949 the percentage had increased to 19.4. There are now over 6¼ million fertile acres within the service area of reclamation projects. These acres are located in family-sized farms which form the nucleus of a prosperous agricultural economy in the West. The effects of this basic new wealth radiate out and extend to every section of the Nation.

The cumulative value of crops produced on reclamation projects now exceeds $7.8 billion. The value of the crop produced in 1951 with either a full or supplemental water supply delivered through reclamation works surpassed the half-billion dollar mark for the sixth consecutive year and reached $654 million to mark the first year of crop value in excess of $600 million. Crop value figures for the past 10 years are given on the attached table.

The importance of the products of western irrigation is measured more adequately in terms of the types and kinds of food and fiber produced rather than in the dollar value of the product. Much of the Nation's abundant supply of choice fruits, nuts, and vegetables comes entirely from western irrigation with a high percentage from reclamation projects. In addition to the production of the choice protective foods, the feed and forage crops of irrigated areas make possible the efficient utilization of the western range. From this source in turn comes a substantial portion of the Nation's essential livestock and livestock products.

Since the beginning, the Congress has required that moneys appropriated for reclamation construction should be returned to the Treasury by those benefiting from project development. By the end of the current fiscal year, the payments made by irrigators in retirement of the capital cost will approximate $98 million and in addition the money appropriated by Congress annually for operation and maintenance purposes is returned to the Treasury each year. The attached table presents the payments by water users over the past 10 years.

The great projects which have been under construction over recent years are just now entering the operation stages. For example, the first major irrigation water deliveries will be made on the Columbia Basin project this year. Before any irrigation water deliveries could be undertaken the massive works at Coulee Dam, Coulee pumping plant, the withholding, regulating and controlling reservoirs and major supply canals had to be complete. Similarly, although the major cost items of the Central Valley project in California had already been incurred, the first integrated operation of project works did not get under way until August of last year. The Colorado-Big Thompson and Missouri Basin projects will not be in capacity operations for many years yet to come. Thus, the return to society from this major reclamation construction will be made increasingly apparent as project works go into full operation.

Payments by irrigators and crop value, 1942–51

Fiscal year	Payments by irrigators				Crop value [1]
	On contract	Operation and maintenance costs	Water rental	Total	
1942	$2,464,000	$1,186,000	$456,000	$4,106,000	$272,048,516
1943	3,410,000	1,338,000	569,000	5,317,000	388,670,969
1944	4,082,000	1,535,000	780,000	6,397,000	411,226,364
1945	3,736,000	1,551,000	1,067,000	6,354,000	435,184,395
1946	3,418,000	1,652,000	833,000	5,903,000	530,623,945
1947	4,119,000	2,153,000	890,000	7,162,000	555,420,804
1948	3,728,000	2,379,000	421,000	6,588,000	534,623,541
1949	3,969,000	2,821,000	1,438,000	8,228,000	516,329,008
1950	2,481,000	2,623,000	2,302,000	7,406,000	578,237,709
1951	4,296,000	2,816,000	1,786,000	8,898,000	654,019,527
Total	35,703,000	20,054,000	10,542,000	66,299,000	4,876,384,778

[1] Crop year.

USE OF AGRICULTURAL LAND FOR AIR BASE

Mr. FENTON. I have a reason for that, because at the present time in the State of Pennsylvania this Government of ours is contemplating taking out four or five thousand acres of the finest agricultural land in the country to put in an air base on it.

I am arguing with our Government at the present time about the silliness of the proposition of our paying so much for irrigation in the West and their coming into the East and taking out 5,000 acres in Lancaster County, Pa., some of the finest agricultural land in the country. Where are we coming to on propositions of that kind.

(Discussion off the record.)

PRODUCTION OF POWER BY THE GOVERNMENT

Mr. FENTON. I would also like to know—and I asked this question of the Southwest boys today—how much power is the Reclamation Bureau accountable for in all the projects they have west of the Mississippi annually.

Mr. MCPHAIL. At the present time we have in our own power plants roughly 4,200,000 kilowatts. In addition, we are marketing the power from the Fort Peck power plant of the Corps of Engineers, which has an installed capacity of 85,000 kilowatts.

Mr. FENTON. Can you supply also the amount of power produced by other governmental agencies like the Army engineers?

Mr. MCPHAIL. Yes, sir. So far the Fort Peck plant is the only one from which we are disposing power. There will be additional ones in the Missouri Basin when Fort Randall and Garrison Dams are completed.

Mr. FENTON. Will you supply that for the record, the amount that Reclamation is producing plus the amount that the Army engineers are producing.

Mr. MCPHAIL. Yes, sir; we will be glad to do that.

(The information requested is as follows:)

The installed generating capacity and production of Bureau of Reclamation power plants and Fort Peck, Army Corps of Engineers' plant from which the Bureau markets power, are as follows:

Installed generating capacity in kilowatts

	As of December 1950	As of December 1951
Bureau of Reclamation plants	3,454,900	4,048,700
Army Corps of Engineers (Fort Peck)	50,000	85,000

Production in thousands of kilowatt-hours (net generation)

	1950	1951
Bureau of Reclamation plants	19,917,762	22,713,079
Army Corps of Engineers (Fort Peck)	316,422	361,930

PRODUCTION OF POWER BY PRIVATE UTILITIES

Mr. FENTON. Can you also supply for the record the amount of power produced in the area under your supervision from private power plants?

Mr. MCPHAIL. We will endeavor to do that.

Mr. FENTON. And break it down by steam and hydro power?

Mr. MCPHAIL. We will endeavor to do that. I am not sure we can. I don't know that we have that information, but I think we can get it.

Mr. FENTON. I will appreciate it, if you would.

(The information requested is as follows:)

The Bureau of Reclamation has electric power facilities and distributes power in the following States: Arizona, California, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Washington, and Wyoming. Privately owned utility plant capacity and production in these States during 1950 was:

	Installed generating capacity	Production
	Kilowatts	*1,000 kilowatt-hours*
Hydroelectric	3,294,879	20,985,096
Steam	3,267,603	12,674,385
Internal combustion	164,107	175,504
Total	6,726,589	33,834,985

WHEELING CONTRACTS

Mr. MCPHAIL. I have a statement I would like to read concerning wheeling contracts.

During the fiscal year 1952 to date, three contracts involving wheeling have been concluded. Two of these contracts, Pacific Gas & Electric, California, and Montana States Power Co., Wyoming, provide for mutual wheeling while the third contract, Mohave Electric Cooperative, Arizona, provides for wheeling by the Bureau for the contractor.

Negotiations will continue and contracts may be concluded during the fiscal year 1952 for four more such type contracts. In two of these contracts, Baker Electric Cooperative, North Dakota, and L. & O. Power Cooperative, Iowa, the contractor, will wheel for the Bureau.

In the other two contracts, Rushmore O. & T. Cooperative, South Dakota, and California-Pacific Utilities, Nevada, the Bureau will wheel for the contractor.

Negotiations are under way now for 18 additional contracts which involve wheeling, with definite action on some of them proposed in fiscal year 1953. Negotiations with other contractors on still additional contracts will no doubt be initiated between now and the end of fiscal year 1953. The wheeling arrangements for most of those contracts have not been determined but some will no doubt involve mutual wheeling while others will be one-way wheeling contracts.

STATUS OF NEGOTIATIONS WITH UTILITIES FOR TRANSMISSION, FIRMING AND STAND-BY POWER SERVICES

I will submit for the record the list showing the status of Bureau of Reclamation negotiations with utilities for transmission, firming, and stand-by power services and a statement of existing contracts and contracts under negotiation which provide for services indicated.

(The information referred to is as follows:)

Status of Bureau of Reclamation negotiations with utilities for transmission, firming, and stand-by power services

As of January 10, 1952, the status of existing contracts and negotiations for new contracts by the Bureau of Reclamation is shown in the tabulation below:

Existing contracts providing wheeling for Bureau	21
Contracts under negotiation to provide wheeling for Bureau	21
Existing contracts under which Bureau wheels for others	24
Contracts under negotiation whereby Bureau would wheel for others	15
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	33
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	21

The over-all picture regarding the status of Bureau of Reclamation contracts with others for transmission, firming, and stand-by power services has not changed materially from information and data heretofore presented. However, wartime and temporary contracts have either expired or have been replaced by new contracts. The operational areas of the Bureau have been expanded in several States, due mainly to the scheduling of new hydro plants, which in turn has resulted in an appreciable increase in the number of service contracts.

In the following portion of this report the above tabulation is detailed by States so that full information may be available for particular areas:

ARIZONA

Existing contracts providing wheeling for Bureau	3
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	8
Contracts under negotiation whereby Bureau would wheel for others	3
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	5
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	1

CALIFORNIA

Existing contracts providing wheeling for Bureau	1
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	3
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	3
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	0

COLORADO

Existing contracts providing wheeling for Bureau	1
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	1
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	7
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	0

IDAHO

Existing contracts providing wheeling for Bureau	1
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	1
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	1
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	0

IOWA

Existing contracts providing wheeling for Bureau	0
Contracts under negotiation to provide wheeling for Bureau	6
Existing contracts under which Bureau wheels for others	0
Contracts under negotiation whereby Bureau would wheel for others	3
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	0
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	6

MINNESOTA

Existing contracts providing wheeling for Bureau	0
Contracts under negotiation to provide wheeling for Bureau	3
Existing contracts under which Bureau wheels for others	0
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	0
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	3

MONTANA

Existing contracts providing wheeling for Bureau	2
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	1
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	2
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	0

NEBRASKA

Existing contracts providing wheeling for Bureau	0
Contracts under negotiation to provide wheeling for Bureau	4
Existing contracts under which Bureau wheels for others	0
Contracts under negotiation whereby Bureau would wheel for others	4
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	1
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	4

NEVADA

Existing contracts providing wheeling for Bureau	1
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	1
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	1
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	0

NEW MEXICO

Existing contracts providing wheeling for Bureau	1
Contracts under negotiation to provide wheeling for Bureau	3
Existing contracts under which Bureau wheels for others	1
Contracts under negotiation whereby Bureau would wheel for others	3
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	2
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	3

NORTH DAKOTA

Existing contracts providing wheeling for Bureau	4
Contracts under negotiation to provide wheeling for Bureau	3
Existing contracts under which Bureau wheels for others	3
Contracts under negotiation whereby Bureau would wheel for others	1
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	3
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	2

SOUTH DAKOTA

Existing contracts providing wheeling for Bureau	3
Contracts under negotiation to provide wheeling for Bureau	2
Existing contracts under which Bureau wheels for others	3
Contracts under negotiation whereby Bureau would wheel for others	1
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	2
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	2

WASHINGTON

Existing contracts providing wheeling for Bureau	1
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	0
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchase or interchange of power for stand-by and firming purposes	1
Contracts under negotiations to provide for interchange or purchase of power for stand-by and firming purposes	0

WYOMING

Existing contracts providing wheeling for Bureau	3
Contracts under negotiation to provide wheeling for Bureau	0
Existing contracts under which Bureau wheels for others	2
Contracts under negotiation whereby Bureau would wheel for others	0
Existing contracts providing for purchases or interchange of power for stand-by and firming purposes	5
Contracts under negotiation to provide for interchange or purchase of power for stand-by and firming purposes	0

Bureau of Reclamation statement of existing contracts and contracts under negotiation which provide for services indicated

	Project	State	Existing (E) or proposed new (N) contracts	Wheeling service for United States over contractor facilities	Wheeling service for contractor over Bureau facilities	Purchase or interchange of power for stand-by and firming
Pacific Power & Light Co	Yakima	Washington	E	Yes		Yes.
Idaho Power Co	Boise	Idaho	E	Yes	Yes	Yes.
Do	Minidoka	Oregon				
Pacific Gas & Electric Co	Central Valley	California	E	Yes	Yes	Yes.
Metropolitan Water District of Southern California	Boulder Canyon	Arizona-Nevada	E	Yes		
Citizens Utilities Co	Davis	Arizona	N		Yes	
Arizona Power Authority	do	do	E		Yes	Yes.
California Pacific Utilities Co	do	do	N		Yes	
California Pacific Utilities Co	do	do	E	Yes	Yes	
Imperial irrigation district	do	California	E		Yes	Yes.
Mohave Electric Co-op	do	Arizona	E		Yes	
State of Nevada	do	Nevada	E		Yes	Yes.
Bureau of Indian Affairs	do	Arizona	N		Yes	Yes.
Arizona Edison Co	Parker	do	E			Yes.
California Electric Power Co	do	do	E		Yes	Yes.
Central Arizona Light & Power Co	do	do	E		Yes	Yes.
Imperial irrigation district	do	California	E		Yes	Yes.
Bureau of Indian Affairs	do	Arizona	E	Yes	Yes	
Salt River Valley Water Users Association	do	do	E		Yes	
Tucson Gas, Electric, Light & Power Co	do	do	E		Yes	Yes.
Community Public Service Co	Rio Grande	New Mexico	E			Yes.
Do	do	do	E			Yes.
Public Service Co. of New Mexico	do	do	E	Yes	Yes	Yes.
El Paso Electric Co	Rio Grande	do	E			Yes.
Do	do	do	N	Yes	Yes	Yes.
Plains Electric Co-op	do	do	N	Yes	Yes	Yes.
Albuquerque Gas & Electric	do	do	N	Yes	Yes	Yes.
Marias Electric Co-op	Fort Peck	Montana	E			Yes.
McCone County Electric Co-op	do	do	E			Yes.
Montana-Dakota Utilities Co	do	North Dakota, South Dakota	E	Yes	Yes	Yes.
Montana Power Co	do	Montana	E			Yes.
Do	do	do	E	Yes		
Do	Missouri	do	E	Yes	Yes	Yes.
Cheyenne Light, Fuel & Power Co	Kendrick	Wyoming	E			Yes.
Mountain States Power Co	Riverton-Shoshone	do	E	Yes	Yes	Yes.
Do	Kendrick	do	E	Yes		Yes.
Rawlins Electric Co	do	do	E			Yes.
Western Public Service Co	do	do	E			Yes.
Public Service Co. of Colorado	do	Colorado	E			Yes.
Do	Colorado-Big Thompson	do	E	Yes	Yes	Yes.
Do	do	do	E			Yes.

Public Service Co. of Colorado	do	Colorado	E			Yes.
Do	Colorado-Big Thompson	do	E	Yes	Yes	Yes.
Do	do	do	E			Yes.

City of Fort Morgan	do	do	E			Yes.
City of Longemont	do	do	E			Yes.
City of Loveland	do	do	E			Yes.
Y-W Electric Association	do	do	E			Yes.
Consumers Public Power District	North Platte	Nebraska	E			Yes.
Do	Missouri	do	N	Yes	Yes	Yes.
Nebraska Public Power System	do	do	N	Yes	Yes	Yes.
Omaha Public Power District	do	do	N	Yes	Yes	Yes.
Black Hills Power & Light Co	do	do	N	Yes	Yes	Yes.
Sioux City Gas & Elec. Co	do	Iowa	N	Yes	Yes	Yes.
L. & O. Power Co-op	do	do	N	Yes		Yes.
Cornbelt Power Co-op	do	do	N	Yes		Yes.
Iowa Public Service Co	do	do	N	Yes	Yes	Yes.
Southwestern Federal Power Co-op	Missouri	do	N	Yes		Yes.
Interstate Power Co	do	do	N	Yes	Yes	Yes.
Baker Electric Co-op	do	North Dakota	N	Yes		
Central Electric & Gas Co	do	South Dakota	N	Yes	Yes	Yes.
Border Counties Power Co-op	do	Minnesota	N	Yes		Yes.
Rural Cooperative Power Association	do	do	N	Yes		Yes.
Minnkota Power Electric Co-op	do	do, North Dakota	N	Yes		Yes.
Northern States Power Co	do	do	N	Yes	Yes	Yes.
Rushmore G. & T	do	South Dakota	N	Yes		Yes.
Central Power Electric Co-op	do	North Dakota	E	Yes	Yes	Yes.
Otter Tail Power Co	do	do	E	Yes	Yes	Yes.
Northwestern Public Service Co	do	South Dakota	E	Yes	Yes	Yes.
East River Electric Power Co-op	do	do	E	Yes	Yes	
Verendrye Electric Co-op	do	North Dakota	E	Yes		

REMOVAL OF GEOGRAPHICAL LIMITATIONS ON MARKETING AREA OF MISSOURI BASIN PROJECT POWER

Mr. McPHAIL. I would like to also present for the record a memorandum to the Secretary of the Interior from the Acting Commissioner, Bureau of Reclamation, on removal of geographical limitations on the marketing area for power from Missouri River Basin project power plants—Missouri River Basin project, which was approved by Secretary Chapman on November 16, 1951.

On August 4, 1949, the Secretary established the criteria to be used in the marketing of the first power to become available from the main stem power plants on the Missouri River. These criteria provided that the marketing of Garrison and Fort Randall firm power would be confined to the States of North Dakota and South Dakota and portions of Nebraska, Minnesota, and Iowa lying within a 150-mile radius of Fort Randall. On December 28, 1950, the Secretary expanded the area for the sale of Garrison power to a 275-mile radius from Garrison, which extension takes in the northwest portion of Minnesota. No chage was made in the existing 150-mile radius for the marketing of Fort Randall power.

Now that Congress has provided funds for the Corps of Engineers to commence construction of Gavins Point and Oahe power plants, sufficient additional generating capacity will be available upon completion of these two plants to warrant removal of existing geographical limitations on the marketing area from Fort Randall and Garrison. The installed plant capacity for the power plants is as follows:

Garrison, 400,000 kilowatts; Fort Randall, 320,000 kilowatts; Gavins Point, 100,000 kilowatts; Oahe, 425,000 kilowatts; total, 1,245,000 kilowatts.

All evidence points to a rapidly growing market in the area for low-cost power. Firm power applications received from all classes of potential customers within feasible transmission distance from the main stem plants total approximately 900,000 kilowatts for 1954, and over 1,200,000 kilowatts for 1959. The foregoing are exclusive of any special allowances for the development of potential basin resources. From the above, it can be seen that by 1960 another power shortage will exist unless additional main stem plants are constructed on a scheduled basis.

The present marketing area, limited by a 150-mile radius from Fort Randall and a 250-mile radius from Garrison, will not offer a marketing area big enough to dispose of this power to preferred customers. Removal of such geographical limitations accordingly is warranted and desirable. Power from Missouri River Basin project power plants can then be marketed to the limit of feasible and economical transmission distances. This would bring service to most of the preferred customers in southern and western Minnesota, western Iowa, and Nebraska, and would permit the Bureau to negotiate contracts with these additional preferred customers. This is desirable because it would permit customers in the extended area to coordinate their plans with the Bureau's plans for securing their additional power requirements. Preferred customers having their own generating plants could hold plant additions to a minimum if they knew when Bureau power would be available, and holding to a minimum the use of strategic materials would aid the critical materials situation that exists. The Bureau, by ascertaining the loads and plans of preference customers, would benefit as it could then coordinate its plans with these customers, and make arrangements in advance for wheeling agreements and/or the construction of transmission facilities.

The foregoing contemplates no change in the plan for marketing Missouri River Basin project power in Nebraska, other than the removal of geographic area limitations as indicated.

It is, therefore, recommended that existing geographic limitations on the marketing of power from Missouri River Basin project power plants be removed in order to permit the marketing of such power to the limit of feasible and economical transmission distances.

There has been interest expressed in that memorandum.

Mr. LINEWEAVER. Before we leave "Operation and maintenance," I have several statements I wish to submit.

COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

First, with respect to the operation and maintenance on the Colorado River front work and levee system.

(The statement referred to is as follows:)

With the construction of Hoover Dam and other major storage and diversion structures, the natural regimen of the Colorado River was disturbed. Since storage was started in Lake Mead in 1935, there have been no floods in the stream below that point to sweep the channel of accumulating sediment. As a result, the river bed has eroded in some places, and the eroded sediment has been deposited in others.

The act of June 28, 1946, authorized annual appropriations out of any moneys in the Treasury of the United States not otherwise appropriated to defray the cost of (*a*) operating and maintaining the Colorado River front work and levee system in Arizona, Nevada, and California; (*b*) constructing, improving, extending, operating, and maintaining the protection and drainage works and systems along the Colorado River; (*c*) controlling said river, and improving, modifying, straightening, and rectifying the channel thereof; and (*d*) conducting investigations and studies in connection therewith.

Activities conducted under this authority are spread along the Colorado River from Lee Ferry to the Mexican border. The work program includes the alleviation of current and anticipated river-control problems, the maintenance of river-control installations, and the recording of river behavior.

Between 1902 and 1935 the aggradation of the river at Needles amounted to approximately 11 feet. From 1935 to 1940, following the completion of Hoover Dam, the surface remained approximately the same and then began in increased aggradation resulting in a further increase of 6 feet in about 4 years. The river channel between Needles and Topock, where this aggradation occurred, is through an alluvial plain about 25 miles long and from 2 to 5 miles wide. Temporary relief was afforded by the construction of a main dike, spur dikes, and automatic-pumping equipment. The permanent solution to this problem is in reestablishing and maintaining a channel through the aggraded area, so as to permit the river to again flow freely and thus prevent the flooded and seeped condition of the land from recurring. To accomplish this and other channel maintenance along the river a 20-inch hydraulic cutter-type dredge *The Colorado* was purchased.

Channelization between Needles and Topock proceeded on schedule during fiscal year 1951. The plug preventing the entrance of the river to the full length of constructed channel was removed June 25, 1951, and the river was forced into its new bed. On July 1, 1951, there was a small amount of redredging of the channel to be done plus a considerable amount of levee shaping and some bank protection work. The work between Needles and Topock was practically finished on September 1, the date scheduled for completion.

It is planned that during the balance of fiscal year 1952 and during fiscal year 1953 the dredge *Colorado* will work on a channel rectification program for the Colorado River from Davis Dam to Needles. The program proposes the dredging of approximately 29 miles of river channel, 22 miles of levee, including 14 miles of levee on the east side of the river, and about 8 miles on the west side. The purposes of this program will be to improve the channel, reduce cost of the maintenance of the completed Needles to Topock channel, reduce evaporation and transpiration losses from the river bottom area, increase power head at Davis Dam, and provide for the possibility of the reclamation of 15,000 acres of arable land on the east side of the dredged channel.

With the completion of the channel from Needles to Topock and with the work expected to be accomplished on the channel between Davis Dam and Needles during fiscal year 1952, the water surface of the Colorado River will be lowered to the extent that there will be no necessity for operation of the drainage pumps at Needles during fiscal year 1953.

COOPERATION WITH STATE COLLEGES, DEPARTMENT OF AGRICULTURE, AND OTHER AGENCIES

Mr. LINEWEAVER. On "Cooperation with State colleges, United States Department of Agriculture and other agencies," I will submit a statement explaining our work in this respect.

(The statement referred to is as follows:)

In connection with the planning, development, settlement, and operation of reclamation projects there frequently is need for information and services which best can be supplied by other agencies, particularly the land-grant colleges, including their agricultural extension services and experiment stations, and various agencies of the Department of Agriculture, such as the Bureau of Plant Industry, Soils, and Agricultural Engineering, Soil Conservation Service, Farmers Home Administration, Bureau of Agricultural Economics, and Rural Electrification Administration.

It is the policy and practice of the Bureau to seek the active cooperation of land-grant colleges, other State agencies, and agencies of the Department of Agriculture in conducting the necessary investigations and in supplying such information and services as their respective programs and facilities will permit in developing and carrying out the reclamation program. Programs involving interagency effort usually are developed in the field with the land-grant colleges serving as the focal point for such cooperation. These programs usually are formulated in accordance with memoranda of understanding or cooperative agreements among the agencies concerned.

On December 31, 1951, the Bureau of Reclamation had in effect 103 memorandums of understanding or agreements with State colleges and other agencies. Of these, 41 have been executed during the past calendar year and others have been in effect for from 2 to as many as 8 years. Annual supplements are prepared to many of the general memorandums of understanding outlining specifically the work to be done during the ensuing year. Of the 103 agreements in effect, 83 include State colleges or universities in all 17 of the Western States. Agencies of the Department of Agriculture which are parties to certain of the agreements include the Agricultural Research Administration, Bureau of Plant Industry, Soils, and Agricultural Engineering, Forest Service, Soil Conservation Service, Bureau of Agricultural Economics, Farmers Home Administration, and United States Salinity Laboratory. The work done under these cooperative undertakings may be grouped roughly into four categories, namely, (1) research on agricultural, engineering, and economic aspects of reclamation; (2) land classification; (3) settler assistance, including development farms; and (4) credit.

The work carried on under the general memoranda of understanding may be illustrated by the memorandum between the Kansas State College, the Bureau of Plant Industry, Soils and Agricultural Engineering, the Soil Conservation Service Research, the Soil Conservation Service Operations, the Bureau of Agricultural Economics, the Kansas State Board of Agriculture, and the Bureau of Reclamation. The work to be done includes research on economic, engineering, soils and crop production problems, irrigation and drainage practices, educational work and settler assistance and the organization and supervision of development farms. The annual program of work and the part performed by each agency is determined by a technical committee composed of representatives of the several agencies.

Some of the agreements are of a more limited and specific nature. For example, a memorandum of understanding recently entered into between the Washington State College, the Farmers Home Administration, and the Bureau provided for the joint formulation of plans for domestic water systems for the several irrigation blocks of the Columbia Basin project. Following such formulation the extension service of the State college would conduct educational work and the Farmers Home Administration would, within the limits of its programs, aid in the financing of the development of the domestic water systems.

In most of the Western States the Bureau cooperates with the State colleges and in many cases with the United States Salinity Laboratory and the Bureau of Plant Industry on land classification. This work includes the establishment of standards and specifications for land classification and the review of land classifications. Plans and schedules are being formulated whereby the making of soil surveys by the State colleges and the Bureau of Plant Industry will give preference where possible to areas where land classifications are required by the Bureau of Reclamation in order that the soil survey data may be available for use in the land classification.

Development farms are conducted by the Bureau in new irrigated areas in cooperation with State agricultural colleges. While the farms are conducted as a practical demonstration of the application of the irrigation and farming practices best adapted to the area, a portion of each farm usually is set aside for use of the State agricultural experiment station and agencies of the Department of Agriculture in conducting research on soils, crops, fertilizers, and methods of irrigation.

New settlers on reclamation projects usually are in need of technical assistance in clearing and leveling of land and in the lay-out of the farm irrigation and surface drainage system. Assistance is also needed in adapted kinds and varieties of crops and in approved irrigation and cultural practices. It is the policy of the Bureau to encourage other agencies to provide the needed assistance insofar as their facilities and programs will permit. In several projects the Soil Conservation Service working through soil conservation districts has been especially helpful in assisting farmers in land leveling and the lay-out of the farm irrigation system. The State agricultural extension services have been helpful in all States in general educational work and in providing technical assistance. In many cases where the Extension Service were unable to provide the necessary services the Bureau has entered into memoranda of understanding with State colleges whereby the Extension Service furnishes the services of an assistant county agent to render special assistance to settlers with the Bureau reimbursing the Extension Service for part or all of the salaries of these assistant county agents.

On the Columbia Basin project an agreement with Washington State College is being developed, whereby a 3-year cooperative program to assist settlers will be financed 60 percent by the college from State and Federal funds and 40 percent from Columbia Basin project funds estimated at not to exceed $60,000 annually, principally for salaries and expenses of assistant county agents.

The Bureau collaborates closely with the Farmers Home Administration in aiding that agency in anticipating the credit needs of settlers on reclamation projects. Recently a memorandum of understanding was entered into providing for the making and servicing of loans to settlers who purchase Government acquired land on the Columbia Basin project.

DEVELOPMENT FARMS

Mr. LINEWEAVER. And on "Development farms," which we regard as important in our cooperative activities, I have a statement.

(The statement referred to is as follows:)

The development farm program of the Bureau of Reclamation in cooperation with State experiment stations and Department of Agriculture agencies, chiefly the Bureau of Plant Industry, Soils, and Agricultural Engineering and the Soil Conservation Service, has continued to be very successful in disseminating valuable information to new settlers.

The main purpose of the development farms is to demonstrate approved methods of layout of farm irrigation systems, irrigation methods, cultural practices, kinds and varieties of crops adapted to irrigation and various soil conditions, fertilizer requirements, modern weed control methods, and other problems which are encountered by the irrigation farmer. Considerable research is conducted also on these farms by the State colleges, the Bureau of Plant Industry, and other agencies.

Many of the farmers who settle on newly developed irrigation projects have not had experience in irrigation farming or have come from irrigated areas where conditions are considerably different from those encountered at their new home. The assistance and guidance which is being rendered to the irrigation farm enhances his chances of financial success, thus increasing the probability that he will meet his irrigation assessments and avoid the necessity for repayment moratoriums. The interest with which the development farms has been received is evidenced by the large number of persons who have visited the farms each year. In addition to these unscheduled visits, field days are held at various times throughout the year with good attendance. The farms have also proved popular with students from State agricultural colleges and vocational training groups.

The location of the farms is determined by the Bureau in collaboration with the State agricultural colleges and other cooperating State and Federal agencies. Particular care is taken in selecting sites which are typical of the soil and other conditions of the area. When possible the farms are established two or more years previous to the time when irrigation water will be available in order that the demonstrations may be under way when the information is required by the farmers.

On the Columbia Basin project, Washington, in region 1, four development farms have been established. Three of these, the Moses Lake, Winchester, and Burke farms are in the Quincy district and were established in 1947, 1948, and

1950, respectively. The fourth, the Pasco farm, was established in the south district in 1948. It is proposed to establish a fifth farm in the east district near Othello in 1953.

Work was started in 1951 on two farms on the Wellton-Mohawk division of the Gila project, Arizona, in region 3. One is located on the valley lands and the other on mesa lands to represent the conditions found on the new family-sized farm units in these two different types of areas on the project.

Six development farms are being developed or are in operation in region 6, five of which are in the Missouri River Basin project. Two of these, the Mandan and Bowbells farms, are in the Missouri-Souris district, North Dakota, on the Heart Butte and Souris units, respectively, and were established in 1947 and 1948. The Huron and Redfield farms are on the Oahe unit of the Missouri-Oahe district in South Dakota and were established in 1946 and 1947. Work was started in 1951 on the Shadehill unit, also in the Missouri-Oahe district, South Dakota. The sixth farm in region 6 is located on the new Cottonwood Bench development on the Riverton project, Big Horn district, Wyoming. Work was started on this farm in 1951. A seventh farm is proposed for 1953 for the Souris unit of the Missouri River Basin project in North Dakota and possibly will be located near the town of Bantry.

There were two development farms established in 1950 on Missouri River Basin units in region 7. The Bostwick-Nebraska farm is located in Nebraska on the Superior-Courtland unit and the Kanopolis farm on the Kanopolis unit in Kansas, both in the Kansas River district. Eight additional farms are proposed for the Missouri River Basin project in region 7 for 1952 and 1953. Five of these will be located on the Cambridge unit, Nebraska, and the St. Francis, Superior-Courtland, Cedar Bluff, and Kirwin units in the Kansas River district. The other three will be in Nebraska on the Sargent and Farwell units in the Lower Platte area and on the Ainsworth unit in the Niobrara River area.

This makes a total of 14 development farms now being established or in operation and a total of 10 farms proposed for development in 1952 and 1953. As new irrigation projects are developed it is proposed to establish additional farms wherever it is deemed necessary to demonstrate practices which will aid new settlers in making a success of irrigation farming.

Mr. LINEWEAVER. I will submit this chart on "Development farms."

(The chart referred to is as follows:)

Development farms

Name of farm	Region	State	Project	District	Division	Unit	Developed	First crop year	Proposed for
Winchester	1	Washington	Columbia Basin	Quincy			1948	1949	
Moses Lake	1	do	do	do			1947	1948	
Pasco	1	do	do	South			1948	1949	
Burke	1	do	do	Quincy			1950	1951	
Othello	1	do	do	East					1953
Valley	3	Arizona	Gila		Wellton-Mohawk		1951	1952	
Mesa	3	do	do		do		1951	1952	
Mandan	6	North Dakota	Missouri River Basin.	Missouri-Souris	Heart	Heart Butte	1947	1948	
Bowbell	6	do	do	do		Souris		1948	
Huron	6	South Dakota	do	Missouri-Oahe		Oahe	1946	1947	
Redfield	6	do	do	do		Oahe	1947	1948	
Bantry	6	North Dakota	do	Missouri-Souris		Souris			1953
Shadehill	6	do	do	Missouri-Oahe	Grand	Shadehill	1951	1952	
Riverton	6	Wyoming	Riverton	Riverton		Unit 3	1951	1952	
Bostwick-Nebraska	7	Nebraska	Missouri River	Kansas River	Bostwick-Nebraska	Superior-Courtland	1950	1951	
Kanopolis	7	Kansas	do	do	Smokey-Hill	Kanopolis	1950	1951	
New Arapahoe	7	Nebraska	do	do	Frenchman-Cambridge	Cambridge			1952
St. Francis	7	Colorado	do	do	Upper Republican	St. Francis			1953
Bostwick-Kansas	7	do	do	do	Bostwick-Kansas	Superior-Courtland			1952
Cedar Bluff	7	do	do	do	Smokey-Hill	Cedar Bluff			1952
Kirwin	7	do	do	do	Solomon	Kirwan			1953
Sargent	7	Nebraska	do	Lower Platte Area	Middleloop	Sargent			1953
Farwell	7	do	do	do	do	Farwell			1953
Ainsworth	7	do	do	Niobrara River River area.	Sand Hills	Ainsworth			1953

LAND SETTLEMENT PROGRAM

Mr. LINEWEAVER. The land-settlement program is quite important and I submit this statement.

(The statement referred to is as follows:)

A total of 883 public land farm units comprising 85,104 irrigable acres, has been opened to homestead entry by the Bureau of Reclamation in its 20 postwar land openings. In addition, in 8 other openings since the close of World War II, there have been 120 full-time farm units, comprising 8,988 irrigable acres, and 109 part-time farm units, comprising 180 irrigable acres made available from Government-acquired land on the Columbia Basin project.

Before the close of the present 1952 fiscal year 11 additional farms comprising 887 irrigable acres will be opened to homestead entry while 71 additional full-time farm units comprising 3,977 irrigable acres will be made available for sale on the Columbia Basin.

The estimated number of acres and farm units that will be opened to settlement on reclamation projects in 1953 are, tentatively, as follows:

Project	Acres	Farm units
Gila project, Arizona, Wellton-Mohawk division	1,300	9
All-American Canal project, California, Coachella division	640	8
Columbia Basin project, Washington	2,823	37

The supply of public land available for settlement is becoming relatively scarce; therefore, the number of units opened to entry has diminished to some extent of late. The demand on the part of veterans, however, has not diminished as evidenced by the large number of persons who have made application for the farm units available. In the recent sale of full-time farm units conducted on the Columbia Basin project over 5,000 persons requested that they be supplied with information and application blanks, and 782 of these persons filed applications for the 20 farm units available, or an average of 39 applications per farm unit. Thus for each veteran who succeeded in obtaining a farm unit 38 were disappointed. While the majority of the applications received are from persons residing in the Midwest and Western States, it is not unusual to receive applications from 40 or more States and in some cases from foreign countries where veterans are in temporary residence. In all openings veterans have been extended preference in the submission of applications for farm units.

It is the policy of the Bureau to encourage rapid irrigation development and settlement of private land for which irrigation water is made available from facilities constructed by the Bureau. While the Bureau has no direct authority to require such development, nevertheless, the regional offices of the Bureau, together with the respective operating office officials concerned, formulate and conduct, in collaboration with appropriate local, State (including State colleges of agriculture), and other Federal agencies, a settlement program for privately owned lands. The Bureau is vitally concerned with private land settlement and development because of its responsibility for the recovery of reimbursable construction costs. Among the agencies or organizations and individuals that are helpful in formulating and conducting programs for a united attack on the problem are water user's organizations, farm organizations, businessmen's organizations, chambers of commerce, county officials, farm machinery and farm supply dealers, school officials, local and Federal credit agencies, soil-conservation districts, veterans' organizations, county agricultural agents, and representatives of other State and Federal agricultural agencies.

SETTLER ASSISTANCE PROGRAM

Mr. LINEWEAVER. The settler assistance program is dealt with in the statement on cooperation with State college but deserves special attention in connection with cooperation with Department of Agriculture agencies as well as State colleges. I have a statement on this phase.

(The statement referred to is as follows:)

The Bureau has continued its policy of encouraging other agencies to provide essential technical assistance to new settlers on reclamation projects, such as clearing and leveling the land, lay-out of the farm irrigation and surface drainage systems, and assistance in approved irrigation and cultural practices. The Bureau of Reclamation attempts to render only that assistance within the limitations of its program and facilities not rendered by other agencies. These cooperative relationships in settler assistance work are generally arranged by means of either formal or informal memoranda of understanding or agreements between the Bureau and the agency or agencies concerned. However, a great deal of such cooperative settler assistance work is carried out by means of informal agreements with various Federal, State, and local agencies.

Technical assistance in the lay-out of the farm distribution system, in clearing and leveling of land, and in establishing approved irrigation practices is especially important in public land areas where lands are opened to homestead entry and where in most cases the new settlers, many of whom have had no previous experience with irrigation,must carve the farm out of sagebrush. Technical assistance is also needed by dry-land farmers, such as those in the Missouri Basin, who change from dry-land farming to irrigation.

Due largely to the increased emphasis which has been placed on settler assistance during the past few years, new settlers who have obtained public land farm units in recent land openings have made remarkable progress in developing their units. Dry-land farmers who have received water from Bureau-constructed facilities have made equally remarkable progress in constructing their farm distribution systems, in leveling their land, and in establishing approved irrigation practices. For example on the W. C. Austin project in Oklahoma where construction was completed in 1949, approximately 75 percent of the irrigable area was irrigated during the 1949 crop season while during the 1951 crop season all but two farmers who had water available were irrigating. Remarkable progress has been made in getting the farmers to adopt good irrigation practices.

The limited credit facilities available to settlers on reclamation projects has persistently been a problem. Under the provisions of Public Law 361, Eighty-first Congress, it is now possible for the Farmers Home Administration of the Department of Agriculture to make loans to settlers on public land previous to the time the settler receives patent to the land. The Bureau is working closely with the Farmers Home Administration in anticipating the credit needs of settlers on both public and private land projects and in assisting settlers in their financial problems. This increase in credit availability is of material assistance to settlers in developing their farm units. However, credit still remains a problem because in many areas the amount of funds available from Federal agencies are insufficient to meet the needs and in most cases new settlers are unable to obtain loans from commercial banks or private loan agencies until they get their land developed and have considerable equity in their farms.

The new cooperative agreement proposed for aid to settlers on the Columbia Basin project with Washington State College is important in this program. This agreement has been previously explained.

WEED CONTROL

Mr. LINEWEAVER. Weed control is a vital activity of operation and maintenance which is explained in the following statement:

(The statement referred to is as follows:)

Weed growths on the banks and in the channels of irrigation canals and drains create one of the major operation problems of irrigation systems. Because of its responsibility to its water users the Bureau of Reclamation has inaugurated a comprehensive weed-control program which is proving very effective.

More permanent and economical methods of weed control have been developed through a cooperative research program between the Bureau of Reclamation and the Bureau of Plant Industry, Soils, and Agricultural Engineering, Department of Agriculture, which, in turn, cooperates with various State college experiment stations in the West. This research is being continued for finding solutions to weed problems for which no economical methods have been developed.

Often in the past nothing was done to control weeds until it became necessary in order to deliver sufficient water to the crops and then usually inefficient and costly hand methods were employed, resulting in only temporary control. Through the development and adoption of more permanent and economical

weed control methods operating efficiency has been increased, maintenance costs have been reduced hundreds of thousands of dollars annually, and water losses have been materially reduced. In order to prevent future weed problems and to control erosion on canal rights-of-way the Bureau has inaugurated a program of seeding weed-competitive grasses with the aim of eventually obtaining a dense grass sod on all ditches where conditions are favorable to its growth.

The Bureau's educational weed-control program includes the production and distribution of handbooks, motion pictures, slide lectures, and other material concerning weed control on irrigation systems. The Bureau cooperates with Federal, State, and local agencies and organizations and with the Department of the Interior and the Department of Agriculture Weed Control Committee's educational programs.

Inasmuch as land weeds on the banks and water weeds in the channels of canals and drains create major problems in the efficient delivery of irrigation water, the adequate drainage of farm lands, and the economical operation and maintenance of the systems, it is essential that a well-planned and administered program of weed control and research be continued.

LOWER COST CANAL-LINING PROGRAM

Mr. LINEWEAVER. The lower cost canal-lining program is designed to bring down operating and construction costs. I have a statement on its progress.

(The statement referred to is as follows:)

Approximately one-third of all the water diverted from western streams for irrigation is lost in transit before it reaches the farmers' fields. A growing concern for this loss of water and the excessive cost of making canals and laterals reasonably watertight prompted the Bureau of Reclamation to initiate its lower cost canal-lining program in 1946. Aimed at the development of more economical methods of seepage control, the program has progressed through laboratory tests and experimental field installations of various types of materials and construction methods. Certain phases of the work have been delegated to State college experiment stations cooperating with the Soil Conservation Service, through memorandums of agreement with both agencies.

After 5 years work it is concluded that the lower-cost canal lining program is the most successful program of its type conducted by the Bureau. That it has been successful stems from the universal realization that some means of lining canals at low cost must be found as an economic means of preventing waste of water and poor drainage conditions; but in addition its success is due in no large part to the fact that it has been adequately financed.

Progress during the first 2 years was covered in a general information report entitled "Lower-cost Canal Linings," dated June 1948. Subsequently, a number of special reports on equipment development, trial installations, cooperative tests, and condition surveys have been issued. A summary report on canal linings, with emphasis on lower-cost methods for seepage control, prepared in the Office of the Chief Engineer, Bureau of Reclamation, Denver, Colo., was issued on January 1, 1951. A further report is in the final stages of preparation and should be ready for release in a short time.

Some very definite accomplishments resulting from the lower-cost canal lining program are stated briefly below:

1. The liberalization and simplification of Bureau specification requirements with respect to line, grade, and finish of hard surface linings have encouraged greater mechanization of placing equipment and resulted in lower construction costs and lower bid prices.

2. The elimination of reinforcement steel in concrete and mortar linings, except where safety is involved, has resulted in savings of 10 to 15 percent in the total cost.

3. The development of subgrade-guided slip-forms has made it economically feasible to line small canals and laterals with hard-surface type linings which heretofore have been prohibitive in cost.

4. The standardization of canal shapes and sizes, within a base width range of 2 to 6 feet, has aided in the standardization of slip-form equipment requiring less capital investment and thus contributing to lower construction costs. The standardization of canal design has also resulted in lower costs and faster completion of engineering details.

5. Development of a buried asphalt membrane lining which may be constructed of prefabricated strips or hot sprayed-in-place asphalt cement covered with a protective blanket of earth or gravel at costs about half that of most hard-surface types.

6. Greater utilization of thick (6 to 8 feet) compacted linings of selected earth with the result that bid prices on large jobs are considerably less than buried asphalt membrane. This type of lining is now established as the lowest in cost for dependable seepage control where suitable earth material is available with a minimum of haul and the job is large enough to utilize fully mechanized equipment.

7. New devices and test procedures have been developed for the more economical location and measurement of seepage losses. The reliability and adaptability of these methods are being established by basic investigations and field tests. Although still in the development stage, some of these methods are being used to advantage in determining where the greatest losses occur so that maximum effectiveness can be obtained from a minimum of lining.

Some experimental work has been done with linings of brick, stone, stabilized earth, precast concrete, and asphalt blocks. Some of these have been used rather extensively in certain localities, but none were found to be very practical for general use because of the excessive amount of hand labor involved and the resulting high construction cost. Synthetic plastics and rubber liners were also considered but found to be too expensive.

During fiscal years 1951 and 1952 special attention has been paid to the study and evaluation of canal lining by silting and soil-blanketing operations. While some of the earliest attempts by the Bureau to control seepage were of this type, evidence seems to be that this early work met with varying success and that failures were due to a lack of understanding of all the factors involved. At the present time these methods of canal lining offer promise, under certain conditions, of reducing seepage without having to remove the water from the canal. This latter point is important where water flows in canals all year or where the nonirrigation season is unfavorable for construction work.

Findings and developments in this program have been passed on to design and construction forces, and worth-while savings are being realized. In the concrete lining of the Delta-Mendota Canal alone, it has been estimated that elimination of reinforcement steel resulted in a saving of $2,800,000. Bid prices for lining in general have been substantially reduced since specification requirements have been liberalized. The development of subgrade-guided slip-forms and low-cost asphalt membrane linings has made seepage control economically feasible in many new and old lateral systems where costs for lining heretofore were prohibitive.

In order to fully benefit from investigations to date, the lower-cost canal lining program will be continued. Existing experimental installations should be observed over a period of years, deficiencies should be corrected through additional experimental and design practices, and further development pursued. Efforts to arrive at methods for predetermining the need for seepage control before construction of distribution systems have just recently been started. The need is great to continue such work and to relate it to seepage losses by actual measurement after construction. Further improvement in equipment and placing methods are quite possible and the standardization of sizes, shapes, and design practices should be furthered. The collection of cost data for maintenance as well as for construction is required to properly compare the costs of various linings over their years of serviceable life.

SPRINKLER IRRIGATION

Mr. LINEWEAVER. Sprinkler irrigation has made great forward strides in recent years. I have a statement on that.

(The statement referred to is as follows:)

As the Bureau extends its projects into subhumid areas and to lands more difficult to irrigate in the arid regions of the West, the use of proper irrigation practices becomes more and more important to the success of its farmers. In cooperation with the State agricultural colleges and the research agencies of the Department of Agriculture the Bureau is continuing to investigate methods by which farmers can be assured that they are using the best methods of applying irrigation water. One of the methods which promises, under appropriate conditions, to save water and soil, to reduce the portion of the farmer's time required in

applying water and, thus, to increase his and the Bureau's economic position is sprinkler irrigation. Where conditions make the use of this method necessary, ways and means of reducing the use of critical metals in investigated. On the Moses Lake development farm on the Columbia Basin project asbestos-cement pipe has been successfully substituted for steel. Problems connected with the adaptation of sprinkler-irrigation methods to large open-ditch-irrigation projects are being looked into on several projects.

DRAINAGE PROGRAM

Mr. LINEWEAVER. Drainage on reclamation projects is receiving more and more attention from this committee. I have a statement of progress on this subject.

(The statement referred to is as follows:)

The application of irrigation water in arid regions throughout the world has almost invariably resulted in the rise of the water table. In subhumid regions the use of irrigation water in addition to the natural rainfall naturally adds to the need for drainage in many areas. In all cases the investment in irrigation enterprises makes it very important that every acre of arable land under the ditch be kept in production and not be abandoned on account of waterlogging and alkali. Drainage is highly important, therefore, on most irrigation projects. Because of the prohibitive cost of complete underground investigations it is impossible to forecast the exact needs for drainage before a project has been under irrigation for a number of years. Estimates of the future need for drainage are included in the total cost of new projects used in determining their feasibility but the expenditures are postponed until the need for drainage arises and the proper type and location of facilities more accurately determined.

The Bureau is making every effort to bring its drainage program up to date and keep it so. Where possible the work is carried on by contract as a part of the construction program. Much of the work, however, must be done in small installments over a period of years. These small jobs can best be done by operation and maintenance crews during intervals when they are not engaged on the canal and lateral system. So far as possible the drainage work on existing projects is financed on a pay-as-you-go basis but when the drainage job is greater than can be financed in this way rehabilitation funds are asked for and used. The Government is reimbursed for such funds by the water users under approved repayment contracts.

In order to meet acute drainage problems on certain projects, notably the Riverton in Wyoming, the Boise Payette in Idaho, and the Yuma in Arizona, and to avoid meeting similar problems on new projects the Bureau is expanding its technical staff in this field. New investigations, in addition to the lower-cost canal-lining program, are under way to find methods of decreasing the quantity of water which reaches the groundwater thus causing waterlogging and, failing that, to increase the efficiency of drains used to remove the excess water. The State agricultural colleges and the Department of Agriculture are cooperating in these investigations because the results will be of great value to the farmers on private irrigation projects.

EMERGENCY PROTECTIVE WORK ON BUFORD-TRENTON PROJECT

Mr. LINEWEAVER. Emergency protective work on Buford-Trenton project, North Dakota has received direct attention by the Bureau and the Corps of Engineers. I submit a statement on that activity.

(The statement referred to is as follows:)

The Buford-Trenton project is located on the left bank of the Missouri River at and below the confluence of the Yellowstone and Missouri Rivers in northwestern North Dakota. The pumping plant through which this project secures its water from the Missouri River is located about 1.5 miles above the mouth of the Yellowstone River. The main canal flows generally parallel to the river while the laterals are located between the canal and the river, one lateral being very close to the bank.

Since its development the project has been troubled by erosion of the banks of the Missouri River. Observation indicates that erosion of the river bank is associated with large releases from Fort Peck Reservoir at a time when there is no concurrent high discharge on the Yellowstone River. It is highly probable that bank erosion also represents to some degree changes in channel conditions occasioned by other changes in stream regimen by reason of regulation. Because river alluvium is subject to some erosion under natural conditions the relative degree of channel change attributable to discharge regulation has not been established. The trouble being experienced at the Buford-Trenton pumping plant is an example of comparable future developments at critical locations attendant on the desired regulation of the Missouri River by the multiple-purpose dams constructed under the Missouri River Basin program.

The rate of river-bank erosion at the Buford-Trenton pumping plant has been increasing and it has now become evident that immediate protection is needed to prevent loss this irrigation season of the project's pumping plant, the substation transformers accessory to the pumping plant and the poles of the river power line crossing. Such loss would completely stop irrigation water deliveries on which crop production of the entire project is dependent. Even if temporary protection is provided immediately a section of one of the project laterals may have to be relocated this irrigation season.

Because the need for some bank protection is urgent, $4,000 from the emergency operation and maintenance fund has been allocated for temporary protection. This will use whole trees, overlapping each other in the river, butts tied to a cable on or near the bank, throughout the length of the endangered area. In order to be effective and to be accomplished at a favorable time, that work must be completed by mid-April 1952. If, even with the temporary protection, it becomes necessary to relocate a project lateral to avoid interruption of irrigation deliveries, the cost of such relocation to be paid for from the emergency fund is estimated to be $65,000.

The above-described work is strictly temporary to meet the immediate emergency. It will not prevent recurrence of continually increasing bank erosion jeopardizing the pumping plant and canals. In order to prepare immediately plans and specifications for the lowest cost permanent solution to the bank erosion problem, $6,000 will be expended from Missouri River Basin project funds.

Preliminary estimates indicate that riprapping the bank for permanent protection would cost $260,000, with possibility of lower costs by other methods. Expenditures for such permanent protective work by the Bureau of Reclamation would be financed from Missouri Basin project appropriations. We are informed that some studies of river bank conditions in the vicinity of the Buford-Trenton project have been made by the Corps of Engineers but no report or recommendations have been released. We are informed that within the past few days a special allotment has been approved by the Corps of Engineers. Related work of the two agencies will be coordinated in the field to avoid any duplication and to assure necessary immediate protection of irrigation facilities. The allotment by the corps is $50,000.

Pursuant to the provisions of the Water Conservation and Utilization Act and its amendments repayment of the Buford-Trenton project is fixed at $548,000, which is the water users' ability to repay expenditures of water conservation and utilization funds already made for project irrigation works. No water conservation and utilization funds are available for bank-protection work. Except as allotted in accordance with law to flood control and navigation, Missouri Basin project appropriations available to the Bureau of Reclamation are fully reimbursable.

YUMA PROJECT, ARIZONA-CALIFORNIA

Mr. KIRWAN. The Yuma project is the first item in the "Operation and maintenance" budget.

The allotment for 1952 is $255,800 and for fiscal year 1953 the amount is $226,900.

Pages 68 through 73 of the justification budget will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total fiscal year 1951		$888,762
Allotment, fiscal year 1952:		
Irrigation	$170,800	
Power	85,000	
Funds advanced by water users	44,000	
Total obligations, 1952		299,800
Allotment, fiscal year 1953:		
Irrigation	$197,400	
Power	29,500	
Funds advanced by water users	55,600	
Total obligations, 1953		282,500

JUSTIFICATION OF ESTIMATE

Location.—The Yuma project is located in the southwestern part of Yuma County, Ariz., and the southeastern part of Imperial County, Calif. Water for irrigation and power is diverted from the Colorado River into the All-American Canal at Imperial Dam and thence in turn through five turn-outs to the Reservation division and the Yuma project main canal which are located from 13 to 15 miles below Imperial Dam. The city of Yuma, Ariz., with a population of 25,000 people, lies in the heart of this project.

General conditions.—The Reservation division of the Yuma project and the Yuma auxiliary project are operated and maintained by the Bureau of Reclamation as are the power facilities. Appropriated funds finance the operation of these features while repayment of construction and operation and maintenance costs are made under contracts with individual water user. The care and operation of the Valley division of the Yuma project was taken over by the Yuma County Water Users' Association on July 1, 1951. Funds are advanced by the association to finance its share of the common feature facilities of the Yuma project, including a share of costs for operation and maintenance of the All-American Canal, the Yuma main canal, and the east main canal. A contract with the association provides for repayment of construction costs of the Valley division.

The Siphon Drop power plant located on the Yuma project main canal at the All-American Canal turn-out has a rated capacity of 1,600 kilowatts and supplies power for the Yuma auxiliary pumping plant and the Boundary pumping plant. Surplus power is used by the Bureau of Reclamation with the remainder being sold to public utility companies.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Carriage system	$121,160	+$23,910
For continuation of normal operation and maintenance of the project carriage system. The estimate of the Yuma project's allocated share of the All-American Canal system operation and maintenance to station 775, which is based on continued operation by the Bureau of Reclamation, creates an increase of $13,670, with the balance of the total increase being absorbed in minor increases of the project features.		
Distribution system	86,400	+7,250
For continuation of normal operation and maintenance of the lateral systems. Minor variations in feature estimates are responsible for the increase.		
Drainage system	21,430	+8,530
A substantial increase in the maintenance requirements necessitate an increased estimate for this work. Maintenance of the drainage system has been kept to a minimum in previous years.		
Replacements and improvements	24,010	−1,490
The program for the previous year stressed other items of replacement or improvement. This year work will be concentrated on replacing run-down lateral structures in the distribution systems.		
Total obligations, irrigation	253,000	+38,200
POWER FACILITIES		
Electric generation	21,230	−740
For normal operation and maintenance of Siphon Drop Power Plant.		
Transmission expense	760	−10
Continuation of normal operation and maintenance of 41 miles of transmission lines.		
Replacements and improvements	7,510	−54,750
This amount is required to complete the relocation of 4 miles of Siphon Drop to B-lift 34.5 kilovolts transmission line. 1 mile of relocation to be completed in this year.		
Total obligations, power	29,500	−55,500
Total obligations, all facilities	282,500	−17,300

Schedule of operation and maintenance program fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Carriage system	$95,234	$97,250	$121,160
Distribution system	277,547	79,150	86,400
Drainage system	83,784	12,900	21,430
Replacements and improvements	398,919	25,500	24,010
Total obligations, irrigation	855,484	214,800	253,000
Power facilities:			
Operation and maintenance:			
Electric generation	32,234	21,970	21,230
Transmission expense	1,044	770	760
Replacements and improvements		62,260	7,510
Total obligations, power	33,278	85,000	29,500
Total obligations, all facilities	888,762	299,800	282,500
Method of financing:			
Allotment	189,700	255,800	
Unobligated balance	−3,944		
Allotment required			226,900
Funds advanced by water users	703,006	44,000	55,600

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area: Full irrigation	Acres	[1] 71,159	71,159	71,159
Cultivated area (total)	do	[1] 58,040	58,400	59,400
Gross crop value	Dollars	$11,347,157	$11,500,000	$11,500,000
Average gross crop value per cultivated area	do	$194	$194	$194
Income to repay operation and maintenance costs	do	$897,147	$210,000	$250,000
Diversion dams [2]	Number	1	1	1
Pumping plants	do	2	2	2
Canals	Miles	18	18	18
Laterals	do	313	313	313
Drains	do	91	91	91
Telephone lines	do	20	20	20
Operating roads	do	412	412	412
Power system:				
Annual sales	Kilowatt-hour	14,989,512	14,000,000	15,000,000
Total power revenues	Dollars	$59,142	$55,000	$50,000
Power plants	Number	1	1	1
Plant capacity	Kilowatts	1,600	1,600	1,600
Patrol roads	Miles	3	3	3
Transmission lines	do	41	41	41
Substations	Number	2	2	2

[1] Includes Yuma auxiliary.
[2] Laguna Dam operated and maintained by the All-American Canal system.

PARKER-DAVIS PROJECT, ARIZONA-CALIFORNIA-NEVADA

Mr. KIRWAN. The next project is the Parker-Davis project in the States of Arizona, California, and Nevada.

The amount of $2,240,600 was allotted in 1952 and an allotment of $2,268,000 is being requested for fiscal year 1953.

The justification contained on pages 74 through 78 will be inserted into the record at this time.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$1,507,896
Allotment, fiscal year 1952: Power	$2,420,600	
Total obligations, 1952		2,420,600
Allotment, fiscal year 1953: Power	$2,268,000	
Total obligations, 1953		2,268,000

JUSTIFICATION OF ESTIMATE

Location.—The Parker-Davis Project is a consolidation of two separate projects, namely, the Parker Dam power project, Arizona-California, located in southeastern California and southwestern Arizona, and Davis Dam project, Arizona-Nevada, located in southeastern Nevada and northwestern Arizona. Parker Dam and Davis Dam are located on the Colorado River 15 and 103 miles, respectively, north of Parker, Ariz. The transmission system grid of the combined projects traverses Mohave, Yuma, Maricopa, Pinal, Pima, Yavapai, and Cochise Counties in Arizona, Clark County in Nevada, and San Bernardino, Riverside, and Imperial Counties in California. The project's substations, including step-up banks at power plants, are located at Davis Dam, Phoenix, Coolidge, Tucson, Prescott, Mesa, Maricopa, Cochise, Yuma, Gila, 3 Wellton-Mohawk pumping plants, ED–2, ED–4, and ED–5, all in Arizona; and at Parker Dam, Blythe, and Knob in California, and at Basic Tap and Basic Magnesium project in Nevada. Water for power is from the Colorado River at Parker Dam and Davis Dam.

General conditions.—The Parker-Davis project is a multiple-purpose project as the dams serve as storage reservoirs for irrigation, municipal water supply, flood-control, power production, recreation, fish and wildlife, etc. The project consists of 2 dams and reservoirs, 2 hydroelectric power plants, 25 substations comprising 1,553,000-kilovolt-ampere installed capacity and 25 transmission lines totaling 1,525 miles. The Parker and Davis power plants have an installed generating capacity of 120,000 and 225,000 kilovolt-ampere, respectively. The transmission system allows interchange of power and energy between the Parker, Davis, and Hoover power plants, furnishes power and energy to project customers and to the Yuma-Mesa and Wellton-Mohawk pumping plants on the Gila project and also serves to wheel Hoover power plant energy for the States of Arizona and Nevada. It is estimated that the gross energy output will amount to 1,750,000,000 kilowatt-hours and that power revenues will amount to $7,400,000 for fiscal year 1952. Construction of Parker Dam, Reservoir, and appurtenant works was financed by funds advanced by the metropolitan water district of Southern California. Construction of Parker power plant and transmission system was constructed by appropriated funds; one-half of the power plant costs will be repaid to the United States by the district. The United States retains ownership of the dam and appurtenant works and one-half of the power privileges and reserves the right to control all water passing the dam and to utilize the top 10 feet of storage capacity for flood control. The operation and maintenance costs of the Parker-Davis project are financed from funds appropriated from power revenues.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
POWER FACILITIES		
Electric generation	$869,900	+$13,713
For normal operation and maintenance. Increase due to wheeling and accounting for Arizona's and Nevada's Hoover power-plant energy and to staffing requirements caused by change of Davis Dam project from construction status to operation and maintenance status.		
Other production expense	100,000	
Transportation and distribution expense	1,034,100	−42,024
For normal operation and maintenance of transmission facilities.		
Replacements and improvements	264,000	−124,289
For replacement of 6 sedans, 14 trucks, improvements to substations, transmission lines and patrol roads, replacement of communication equipment, tools, purchase of a pole hole digger and spare parts; construct 10 houses and 30 garages at Parker Dam.		
Total obligations—Power	2,268,000	−152,600
Total obligations—All facilities	2,268,000	−152,600

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
POWER FACILITIES			
Operation and maintenance:			
Electric generation	$674,524	$856,187	$869,900
Other production expense	120,664	100,000	100,000
Transmission and distribution expense	449,908	1,076,124	1,034,100
Replacement and improvements	262,800	388,289	264,000
Total obligations, power	1,507,896	2,420,600	2,268,000
Total obligations, all facilities	1,507,896	2,420,600	2,268,000
Method of financing:			
Allotment	2,999,600	2,420,600	
Unobligated balance	−1,491,704		
Allotment required			2,268,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Power system:				
Annual sales	Kilowatt-hours	718,510,192	1,750,000,000	1,575,000,000
Total power revenues	Dollars	2,510,929	7,400,000	7,400,000
Power plants	Number	2	2	2
Plant capacity	Kilowatts	345,000	345,000	345,000
Patrol roads	Miles	1,375	1,375	1,375
Transmission lines	do	1,504	1,525	1,525
Substations	Number	20	24	25

BOULDER CANYON PROJECT, ARIZONA-NEVADA

Mr. KIRWAN. To be considered next is the Boulder Canyon project of Arizona and Nevada.

The fiscal year 1952 allotment for operation and maintenance was $1,671,000 and an amount of $1,553,000 is being requested for 1953.

Pages 79 through 83 of the justification will be inserted in the record.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$1,691,536
Allotment, fiscal year 1952: Power	$1,671,000	
Total obligations, 1952		1,671,000
Allotment, fiscal year 1953: Power	$1,553,000	
Total obligations, 1953		1,553,000

JUSTIFICATION OF ESTIMATE

Location.—Hoover Dam and power plant are in the Black Canyon of the Colorado River on the Arizona-Nevada States boundary, 450 miles upstream from the Gulf of California, 260 miles downstream from Bright Angel Crossing in the Grand Canyon of the Colorado, and 7 miles east of Boulder City, Nev.

General conditions.—The capacity of Lake Mead, formed by Hoover Dam, is 31,047,000 acre-feet, of which 9,500,000 acre-feet are reserved primarily for flood-control purposes, with incidental use for production of secondary power. Releases from Lake Mead for flood control and irrigation are to be reregulated by Davis Dam where a large quantity of additional power will be generated. Davis Dam is located 67 miles downstream from Hoover Dam. Water releases are used for the generation of electrical power at Parker Dam located 155 miles downstream from Hoover Dam.

The project is designed to regulate the flow of the Colorado River for control of floods, storage for irrigation and municipal water supplies, improvement of navigation, and generation of electrical energy.

The Hoover power plant is designed to generate more than 4 billion kilowatt-hours of firm energy and large quantities of secondary energy annually when all generating units are in operation. At present the installed capacity is 1,034,800 kilowatts and with installation of units A3, A4, and A9 now under way, the total installed capacity will be 1,249,800 kilowatts.

Under the provisions of the Boulder Canyon Project Adjustment Act, the city of Los Angeles, and the Southern California Edison Co., as agents for the United States, operate and maintain certain power-plant machinery and pertinent facilities.

Operation and maintenance costs incurred by the agents in operation and maintaining the machinery and facilities are not reflected in estimates presented by the United States, except for an amount of $50,000 which represents work to be performed by the United States for, and reimbursed by, the operating agents.

The project operation and maintenance costs are financed by allocations from power revenues as authorized by yearly appropriation acts.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
POWER FACILITIES		
Electric generation	$1,343,750	−$197,846
For continuation of normal operation and maintenance of Hoover power plant plus extraordinary items of repair and commencement of the preliminary work for removal of a large mass of unstable rock that hangs above the Nevada valve house and painting the interior of the penstocks and cylinder gates. The decrease is the net result of an increase in the cost of operation and maintenance of Hoover power plant due primarily to the necessity of removing the unstable rock and a decrease resulting from the elimination in fiscal year 1953 of the request for the operation and maintenance of Boulder City.		
Other production expense	100,000	+26,610
For continuation of work on items such as protection facilities, and technical investigations, which concern but are not an integral part of electric generation.		
Transmission and distribution expense	900	
For continuation of the relatively small operation and maintenance expense borne by the Government on Government owned and operated facilities.		
Replacements and improvements	108,350	+53,236
For replacement of equipment such as elevator equipment, air compressor system, water piping, passenger cars, station wagons, truck crane, tractors, miscellaneous shop equipment, and typewriters.		
Total obligations—Power	1,553,000	−118,000
Total obligations—All facilities	1,553,000	−118,000

Schedule of operation and maintenance program, fiscal years 1951–53

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
POWER FACILITIES			
Operation and maintenance:			
Electric generation	$1,544,554	$1,541,596	$1,343,750
Other production expense	105,168	73,390	100,000
Transmission and distribution expense	752	900	900
Replacements and improvements	41,062	55,114	108,350
Total obligations, power	1,691,536	1,671,000	1,553,000
Total obligations, all facilities	1,691,536	1,671,000	1,553,000
Method of financing:			
Allotment	1,808,000	1,671,000	
Unobligated balance	−116,464		
Allotment requirement			1,553,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Storage dams and reservoirs	Number	1	1	1
Telephone lines	Miles	9	9	9
Operating roads	do	5	5	5
Power system:				
Annual sales	Kilowatt-hours	4,421,010,326	4,207,360,000	4,398,600,000
Total power revenues	Dollars	8,639,977	8,700,000	8,800,000
Power plants	Number	1	1	1
Plant capacity	Kilowatts	1,034,800	1,034,800	1,249,800
Patrol roads	Miles	14	14	14
Transmission lines	do	14	14	14
Substations	Number	1	1	1

BOULDER CITY, NEVADA

Mr. KIRWAN. A discussion of the Boulder City, Nev., allotment request is now in order.

The 1952 fund for operation and maintenance was combined with the total project request. $590,000 is being requested for fiscal year 1953 to provide management and services to the city.

Pages 84 through 91 of the justification will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		
Allotment, fiscal year 1952: Power		
Total obligations, 1952		
Allotment, fiscal year 1953: Power	$590,000	
Total obligations, 1953		$590,000

NOTE.—The revised estimate set up for the operation of Boulder City is $770,780. While this remains the amount of the cost program, the appropriation allotment required is only $590,000 since $208,780, the estimated cost of water and power furnished by the Boulder Canyon project, will be financed by an internal cost transfer and will not require appropriated funds.

JUSTIFICATION OF ESTIMATE

Location

Boulder City project, which is Boulder City, Nev., is located on United States Highway No. 93, approximately 7 miles southwest of Hoover Dam and 23 miles southeast of Las Vegas, Nev. The city is built entirely on Government land.

General conditions

The town site is about 2 square miles in area and has a present population of nearly 4,000 persons. Originally constructed for the purpose of housing personnel working on Hoover Dam, the town now provides facilities for Government employees of the Boulder Canyon project, Bureau of Reclamation Region 3, Bureau of Mines experimental station, and the National Park Service. The power operators (the Los Angeles Department of Water and Power and the Southern California Edison Co.), who actually operate the generating equipment at Hoover Dam as representatives of the power allottees, also have employees living in Boulder City. In addition to all these employees directly connected with Government or associated endeavors, there is a considerable number of persons operating private business establishments as well as persons employed outside of Boulder City, and a certain number of retired persons.

In order to establish adequate facilities for a population of nearly 4,000, the city will provide a city management; police and fire protection; health and sanitation supervision; and maintenance departments for streets, sidewalks, street lights; parks, lawn, and parkways; the water and electric systems; public buildings; and Government-owned dwellings.

The special circumstances surrounding the affairs of Boulder City during transition from a Government town to a self-governing municipality are such as to render invalid most direct cost comparisons as between projected expenditures and cost experience in past years. There are many essential elements of modern local government not incorporated in municipal operation previously conducted as a part of the Boulder Canyon project.

From a general standpoint there is no great dissimilarity in total as between previous project costs and the present budgetary proposal for the separate city. Where economies in city operations have been considered possible of achievement, there has been a scaling down which in turn has been offset substantially by the introduction of new and vitally important municipal functions.

These points are emphasized because there can be nothing more than an approximate comparison between the projected budget estimate and the current and prior years costs. Previous cost experience does not reflect operations on the basis on which they are projected for 1953.

Work proposed, fiscal year 1953

City management—$162,900—office of city management.—The office of city management is composed essentially of the city manager and executive assistant and requisite secretarial assistance.

A grade of GS–15 has been assigned to the position of city manager. This compensation level is considered necessary, not alone because of the challenge to administrative expertness which will be present during the transition from project to local government, but because of the immense problem which underlies the proposition in terms of the systematic introduction and application of the principles of municipal government. In many respects the city manager will be shaping a community without benefit of applicable community background, legal precedent, or other customary dependencies.

An executive assistant is provided to supply the city manager with a staff officer to follow up on various departmental functions, to discharge specific staff assignments of trouble-shooting character, and to be the instrument through which the city manager is supplied various factual data not readily or necessarily available in the established segments of the municipal organization.

In keeping with secretarial order No. 2650, the city manager will be the chief executive of the Boulder City municipality, not subject to line direction in the conduct of local affairs except to the extent that there is direct relationship with national affairs.

Directly under the office of city management will also function the finance, purchasing, and personnel activities and services as needed in planning and zoning and related responsibilities.

The total of funds requested for the office of city management involves an estimated expenditure of $145,900 for labor and $17,000 for other services.

Police protection—$36,800.—The police department is a recognized essential feature of municipal operations. Heretofore, the city has utilized a force of so-called rangers who had the joint responsibility of providing the policing of the project facilities (somewhat far removed from Boulder City), as well as the city itself. Again it has been very difficult to apply any cost comparisons because of the difficulty in relating those man-hours of ranger performance exclusively attributable to city policing. As far as could be determined, a force of approximately 10 rangers was considered to be allocable by experience analysis. In viewing this problem for purposes of projected budget estimate, police requirements have been analyzed according to such customary measurements as ratio of policemen to population, the curve of crime incidents, and the important consideration of what a community might be expected to invest to obtain efficient protective coverage. The conclusion has been that, by more exact administration, a force of approximately 70 percent of that estimated to be attributable to the city on past experience will be adequate.

In order to perform the above-enumerated services, it will be necessary to have a total of seven positions. This involves an estimated expenditure of $29,215 for labor and $7,585 for other services.

Fire protection—$2,200.—It is proposed that the fire department be operated on a volunteer basis. In the past the Boulder Canyon project has administered the fire department on a quasi-volunteer basis to the extent that the firemen have been compensated from project funds for time actually spent in responding to fire calls and extinguishing fires. By the same token, fire equipment has been maintained by project labor, with project facilities. The estimate incorporated herein is designed to cover costs which will be sustained by the city in required maintenance and repair of fire equipment, with a nominal amount of $500 for use in compensating volunteer firemen for actual loss of pay incurred in the rendition of their services.

In order to perform the above-enumerated services no full-time employees are proposed. This involves an estimated expenditure of $500 for labor, on an as-required of "when actually employed" basis, and $1,700 for other services.

Health and sanitation—$28,800.—Assigned to the department of health and sanitation, in addition to customary health work, is the dog-control function and other minor health precautionary measures for which interdepartmental arrangements will be made. The need for a full-time health officer is not discernible at present. There is a long-deferred and important task in renovating and refining certain essential health ordinances. Until the program in this respect is more advanced, no provision has been made for enforcement expenditures by this department.

In order to perform the above-enumerated services, it will be necessary to have a total of three positions. This involves an estimated expenditure of $8,597 for labor and $20,203 for other services.

Maintenance department—$203,200.—Various elements of municipal maintenance have been grouped in the department of maintenance. These elements include maintenance in relation to housing, streets, walks, street lights, public

buildings, and public parks. In certain features of municipal maintenance, minor but well-considered reductions have been made, particularly in operations where economies are possible without substantial depreciation of the maintenance standards established under project administration.

To the maximum extent possible, maintenance personnel will be utilized on a diversified plan so that the greatest return on personnel utilization will be realized.

In many respects, municipal maintenance in Boulder City poses a difficult problem. The general standards of maintenance have been well above average and the costs are correspondingly in excess of those customarily associated with cities of this size. Because the degree of maintenance is so easily observed and because of the undoubted importance of sustaining (even under municipal administration) a better than average appearance, it is believed that the estimate presented is both realistic and justifiable.

In order to perform the above-enumerated services, it will be necessary to have a total of 28 positions. This involves an estimated expenditure of $105,027 for labor, and $98,173 for other services.

Utilities department—$359,780.—The department of utilities is comprised of the city electrical distribution system and the water and sewer systems. These utility functions will be conducted according to their respective specialized attributes within the framework of the utilities department. A feature which is involved for the first time as a direct result of the municipal separation is the acquisition cost of power and water, both of which are furnished by the Boulder Canyon project. These costs, representing revenues to that project, are estimated to aggregate approximately $208,780. Of this total, $91,203 is for electrical energy and $117,577 is for water. As in the case of maintenance, no diminution in distribution and maintenance standards of these essential facilities is contemplated. The estimate herewith presented represents the minimum amount consistent with this principle.

In order to perform the above-enumerated services, it will be necessary to have a total of 23 positions. This involves an estimated expenditure of $101,167 for labor and $258,613 for other services.

Recreation department—$5,100.—The growing importance of recreation as an integral part of municipal machinery with its direct and important relationship to crime prevention will assure future growth in this department. The purpose now is merely to keep pace with current trends in municipal organization as well as meet an immediate need by affording the place for a recreation program in the city structure.

In order to perform the above-enumerated services, it will be necessary to have the equivalent of one position. This involves an estimated expenditure of $5,060 for labor and only $40 for other services.

Schools, hospitals, and airport.—Inasmuch as the secretary's order No. 2650, presently governing the municipality of Boulder City, makes no provision for city operations pertaining to schools, hospital, and airport, no departmentalized provision has been made for these items herein. Staffing for the office of city manager and certain ancillary staff offices, however, has encompassed work by the city manager on perfected plans as provided in section 8 of order No. 2650.

Revenue offset.—The municipal budget is presented on an expenditure basis.

Another factor to be considered is that through power and water resale, real property lease rentals, and charges for other municipal services revenues of approximately $500,000 is expected to be realized. In terms of future municipal operations, therefore, it should be observed that the projected deficit may be offset by in-lieu-of-tax payments of Federal agencies and fixed project contributions as contemplated by pending legislation.

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year 1951	Program current year 1952	Program budget year 1953
(1)	(2)	(3)	(4)
MUNICIPAL FACILITIES			
Operation and maintenance:			
City management			$162,900
Police protection			36,800
Fire protection			2,200
Health and sanitation			28,800
Maintenance department			203,200
Utilities department			[1] 151,000
Recreation department			5,100
Total obligations, municipal			590,000
Total obligations, all facilities			590,000
Method of financing: Allotment required			590,000

[1] Net amount does not include $208,780 cost transfer representing cost of power and water.

CENTRAL VALLEY PROJECT, CALIFORNIA

Mr. KIRWAN. The Central Valley project, California, is the next item to be discussed.

The operation and maintenance allotment for 1952 was $2,303,584, while the sum of $3,227,900 is being requested for 1953.

Please insert in the record at this point pages 92 through 97 of your justification.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$1,768,032
Allotment, fiscal year 1952:		
Irrigation	$1,094,584	
Power	1,209,000	
Total obligations, 1952		2,303,584
Allotment, fiscal year 1953:		
Irrigation	$1,810,000	
Power	1,417,900	
Total obligations, 1953		3,227,900

JUSTIFICATION OF ESTIMATE

Location.—The Central Valley consists of the Sacramento and San Joaquin River Valleys in California. The valley is approximately 500 miles long and 100 miles wide extending from Mt. Shasta in the north to the Tahachepi Mountains in the south. It contains 19 of the 58 counties in the State and comprises approximately 27 percent of the land area. On the basis of the 1950 census, the valley contains 20 percent of the State's population. Most recent data available credit the valley with 21 percent of the assessed value of the State and 52 percent of the cash farm income.

General conditions.—The first full operation of the initial features of the project was observed in August 1951; and when this multipurpose project is in full operations, it will provide water for the irrigation (excluding irrigation available from American River development) of approximately 488,000 acres of new irrigable land and a supplemental supply for approximately 759,000 acres of presently irrigated land having an inadequate supply; generate approximately 1,900,000,000 kilowatt-hours of power annually, measured at load centers, for the operation of project pumping plants and for commercial sale; provide water for industrial and municipal purposes; provide flood control on the Sacramento and San Joaquin Rivers at Shasta and Friant Dams, respectively; provide for navigation on the Sacramento River to Chico Landing; provide salinity control in the Sacramento-San Joaquin Delta; and afford opportunities for recreation at Shasta Lake and at Millerton Lake, the reservoir created by Friant Dam.

As of the commencement of fiscal year 1952, 19 long-term water service or repayment contracts for Central Valley project water had been executed with 15 districts, and contract negotiations are in various stages of completion with an additional 18 irrigation districts. Contracts with two of the latter have been approved as to form by the district, the Secretary, and the California District Securities Commission and will be executed if carried at public election. In addition one contract is in process of negotiation with a private utility company for industrial water service.

Effective August 27, 1951, a wheeling contract between the Bureau and a private utility company (Pacific Gas & Electric) covering electrical power transmission became operative. On said date the Bureau commenced service to the first preference customer and to Federal installations by the conveyance of Bureau power over the transmission lines of the private utility company.

Increased project revenues result from the placing into operation of additional features. It is anticipated that the collection from water sales in fiscal year 1953 will be $2,206,000, an increase of 23 percent over anticipated fiscal year 1952 water sales, and it is anticipated that the total revenue from the sale of project water at the conclusion of fiscal year 1953 (including prior years) will be approximatelv $7,300,000. Power revenue is estimated at $8,200,000 in fiscal year 1953; and at the end of fiscal vear 1953, it is estimated that the total cumulative power revenues will be nearing the $60,000,000 mark. An estimated grand total for cumulative power and water revenues at the end of fiscal year 1953 would be in the neighborhood of $65,000,000 to $70,000,000.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$191,200	
For continuation of operation and maintenance of Shasta and Friant Reservoirs.		
Carriage system	1,449,037	+$714,353
For normal operation and maintenance of 413 miles of canal, an increase of 208 miles over fiscal year 1952. Increase further attributable to the operation of the Tracy pumping plant from operation and maintenance funds rather than from operation and maintenance D.-C. funds as in fiscal year 1952, the addition of the last section of the Friant Kern Canal, the operation of the Delta Cross Channel, and the Delta Mendota Canal from operation and maintenance rather than operation and maintenance D.-C. funds. Minor increases included operation and maintenance of access roads, materials, and supplies and water-contract adjustments.		
Replacements and improvements	5,000	
Total obligations, irrigation	1,645,237	+714,353
MUNICIPAL WATER-SUPPLY ACTIVITIES		
Storage systems	7,600	+300
For a pro rata share of operating and maintenance costs of Shasta Reservoir.		
Carriage and distribution system	157,163	+763
For normal operation and maintenance of Contra-Costa Canal for municipal and industrial water deliveries and for operation and maintenance of carriage and distribution systems to the utility districts in the Shasta Dam location.		
Total obligations, municipal water supply	164,763	+1,063
POWER FACILITIES		
Electric generation	813,800	+117,800
For normal operation and maintenance of Shasta and Keswick power plants and complete operation of Shasta Dam camp facilities and Shasta Reservoir ferry service from operation and maintenance funds rather than for partial operation from operation and maintenance funds as in fiscal year 1952 together with an estimated 6 percent increase in wage rate and general increase in cost of supplies and materials.		
Transmission and distribution expense	537,700	+122,700
For normal operation and maintenance of 730 miles of transmission lines. Increase also attributable to transmission of additional Bureau power over private utility lines (wheeling) up approximately 103,900 (total wheeling costs for fiscal year 1953—$305,900) and initial operation of Tracy switchyard from operation and maintenance funds.		
Replacements and improvements	66,400	−31,600
Total obligations, power	1,417,900	+208,900
Total obligations, all facilities	3,227,900	+924,316

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
IRRIGATION FACILITIES			
Operation and maintenance:			
Storage system	$294,610	$191,200	$191,200
Carriage system	318,233	734,684	1,449,037
Replacements and improvements		5,000	5,000
Total obligations, irrigation	612,843	930,884	1,645,237
MUNICIPAL WATER-SUPPLY FACILITIES			
Operation and maintenance:			
Storage system	7,300	7,300	7,600
Carriage and distribution system	147,135	156,400	157,163
Total obligations, municipal water	154,435	163,700	164,763
POWER FACILITIES			
Operation and maintenance:			
Electric generation	766,700	696,000	813,800
Other production expense	300		
Transmission and distribution expense	217,500	415,000	537,700
Replacements and improvements	16,254	98,000	66,400
Total obligations, power	1,000,754	1,209,000	1,417,900
Total obligations, all facilities	1,768,032	2,303,584	3,227,900
Method of financing:			
Allotment	1,973,200	2,303,584	
Unobligated balance	−205,168		
Allotment required			3,227,900

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	2,224	2,250	10,700
Supplemental	do	471,439	516,610	535,660
Total	do	473,663	518,860	546,360
Cultivated area (total)	do	517,383	566,460	594,000
Gross crop value	Dollars	$103,330,345	$123,711,594	$135,000,000
Average gross crop value per cultivated acre	do	$200	$218	$227
Income to repay O. and M. costs	do.[1]	$889,591	$1,797,600	$2,206,000
Storage dams and reservoirs	Number	4	4	4
Diversion dams	do	1	1	1
Pumping plants	do	5	6	6
Canals	Miles	246	413	413
Laterals	do	85	410	710
Drains	do	30	30	30
Telephone lines	do	5	5	5
Operating roads	do	385	385	385
Power system:				
Annual sales	Kilowatt-hours	2,459,467,943	1,908,000,000	1,890,000,000
Total power revenues	Dollars	$10,510,893	$8,226,000	$8,200,000
Power plants	Number	2	2	2
Plant capacity	Kilowatts	454,000	454,000	454,000
Patrol roads	Miles	25	60	60
Transmission lines	do	320	730	730
Substations	Number	6	8	8

[1] This income is derived from sale of water under the 9 (e) type of contracts and consequently has a different bearing on repayment than the condition exemplified in the manual.

NOTE.—Statistics include all project features in operational status covered by both "Operation and maintenance" and "Operation and maintenance during construction."

COLORADO-BIG THOMPSON PROJECT, COLORADO

Mr. KIRWAN. The next project is the Colorado-Big Thompson project in the State of Colorado.

The allotment for 1952 was $840,300 and for fiscal year 1953 the request is $1,166,600.

The justification contained on pages 98 through 103 will be inserted in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$430,236
Allotment, fiscal year 1952:	
Irrigation	90,000
Power	750,300
Total obligations, 1952	840,300
Allotment, fiscal year 1953:	
Irrigation	111,000
Power	1,055,600
Total obligations, 1953	1,166,600

JUSTIFICATION OF ESTIMATE

Location.—The Colorado-Big Thompson project is located in the north-central section of Colorado and is centered 75 miles north and west of Denver. Irrigation facilities extend from the Green Mountain Dam area, 17 miles south of Kremmling, Colo., to the vicinity of Loveland, Colo. Power facilities extend from Oak Creek in western Colorado to Holyoke in eastern Colorado. The project connects two river basins—the Colorado and the Big Thompson.

General conditions.—The Colorado-Big Thompson project construction began in 1938 with the construction of Green Mountain Dam and power plant on the Blue River, 17 miles south of Kremmling, Colo.

The purpose of the project is primarily the diversion of water from the Colorado River Basin on the western slope to the Big Thompson River Basin on the eastern slope. This diversion is accomplished by means of the 13-mile long Alva B. Adams tunnel which was started in 1941 and completed in 1947.

A collection system for the diversion has been constructed on the west slope and consists of the Willow Creek Dam and its reservoir, the Granby Dam and its reservoir, and the Shadow Mountain Dam and combination Shadow Mountain-Grand Lake Reservoir. To aid the collection system Willow Creek pumping plant is being built and will be placed in operation late in 1953, pumping water from Willow Creek Reservoir into Granby Reservoir. Granby pumping plant was built and placed in operation April 1, 1951, pumping water from the Granby Reservoir into Shadow Mountain Reservoir where it will pass into Grand Lake and then through the Adams tunnel to the Big Thompson Basin.

On the east slope, storage reservoirs have been built to receive the water diverted from the Colorado River and will be used to store the supply of supplemental irrigation water. The two major storage reservoirs are Carter Lake and Horsetooth.

Power features are a major part of the project and will consist of the Green Mountain, Estes, Marys Lake, Flatiron, Pole Hill, and Big Thompson power plants which will have a combined generating capacity of 177,650 kilowatts. A small part of this power will go for the operation of Granby, Willow Creek, and Flatiron pumping plants and the remainder will be distributed over an extensive transmission system (approximately 786 circuit miles of line and a total of approximately 43 substations) to REA's, municipalities, and other customers.

The revenue from the sale of this energy will be used for the payment of annual expenses and construction costs. The Northern Colorado Water Conservancy District is obligated to repay $25,889,000 under their present contract and the remaining costs are allocated to the interest-bearing debt which is repaid with 3

percent interest and the non-interest-bearing debt which is repaid partly from the interest component of the interest-bearing debt and the remainder from net operating revenue of the project.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$37,300	+$8,900
For continued operation and maintenance of dams and reservoirs. Increase due to the addition of Willow Creek Dam and Reservoir.		
Carriage system	121,800	+26,400
For continuation of normal operation and maintenance of Granby, and addition of Willow Creek pumping plant and canal system. Increase due to additional pumping energy and the addition of Willow Creek pumping plant and the Willow Creek pump canal.		
Drainage system	1,400	+200
For normal adequate drainage maintenance. Increase due to additional administrative costs.		
Subtotal obligations, irrigation	160,500	+35,500
Joint expenses credit	−49,500	−14,500
Total obligations, irrigation	111,000	+21,000
Electric generation	341,600	+75,000
For normal operation and maintenance of power plants. Increase due to change from interim to full operation of completed power plants; preliminary operating and maintenance expense, i. e., training operators, etc., for Pole Hill and Flatiron power plants, and increased cost of joint facilities.		
Other production expense	335,000	−26,000
For purchase of power. Decrease due to elimination of interchange requirement, partially compensated by an increase in purchase power, and because of acquisition of camps and warehouses by operating and maintenance from construction forces.		
Transmission and distribution expense	347,000	+62,900
For normal operation of transmission facilities. Increase due to addition of new lines and substations; attended operation of Beaver Creek substation; additional wheeling costs; and a new arrangement whereby Colorado-Big Thompson project appropriates all dispatching funds for entire interconnected system.		
Replacements and improvements	32,000	−6,600
Subtotal, power	1,055,600	+105,300
Project energy interchange (net)		[1] +200,000
Total obligations, power	1,055,600	+305,300
Total obligations, all facilities	1,166,600	+326,300

[1] Fiscal year 1952 shows $200,000 credit for this item.

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year, 1951 (2)	Program current year, 1952 (3)	Program budget year, 1953 (4)
IRRIGATION FACILITIES			
Operation and maintenance:			
Storage system		$28,400	$37,300
Carriage system		95,400	121,800
Drainage system		1,200	1,400
Subtotal, irrigation		125,000	160,500
Joint expense credit		−35,000	−49,500
Total obligations, irrigation	(1)	90,000	111,000
POWER FACILITIES			
Operation and maintenance:			
Electric generation	211,725	286,600	341,600
Other production expenses	335,971	361,000	335,000
Transmission and distribution expense	158,639	284,100	347,000
Replacement and improvements	21,477	38,600	32,000
Subtotal, power	727,812	950,300	1,055,600
Project energy interchange (net)	−297,576	−200,000	
Total obligations, power	430,236	750,300	1,055,600
Total obligations, all facilities	430,236	840,300	1,166,600
Method of financing:			
Allotment	608,500	840,300	
Unobligated balance	−178,264		
Allotment required			1,166,600

[1] The irrigation facilities in fiscal year 1951 were financed as O. & M. during construction.

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area: Supplemental	Acres	24,000	230,000	288,000
Total	do [1]	24,000	230,000	288,000
Cumulative area (total)	do	615,000	615,000	615,000
Gross crop value	Dollars	$45,848,000	$47,544,000	$49,250,000
Average gross crop value per cultivated acre	do	$75	$77	$80
Storage dams and reservoirs	Number	4	4	5
Diversion dams	do	1	1	2
Pumping plants	do	1	1	2
Canals, tunnels and conduits	Miles	30	30	34
Operating roads	do	30	38	45
Power system:				
Annual sales	Kilowatt-hour	139,839,101	186,666,000	213,333,000
Total power revenues	Dollars	$1,096,696	$1,400,000	$1,600,000
Power plants	Number	3	3	5
Plant capacity	Kilowatt	74,700	74,700	170,950
Patrol roads	Miles	17	20	25
Transmission lines	do	411	644	724
Substations	Number	22	37	39

[1] Project furnished supplemental storage water. No specific figures available only as specified in the contracts.

SAN LUIS VALLEY PROJECT, COLORADO

Mr. KIRWAN. To be considered next is the San Luis Valley project—the State of Colorado.

No "Operation and maintenance" funds have been requested in past years. The allotment request for 1953 is $9,300.

You will insert at this pont in the record pages 104 through 107 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	------
Total obligations, 1952	------
Allotment, fiscal year 1953:	
Irrigation	$9, 300
Total obligations, 1953	9, 300

JUSTIFICATION OF ESTIMATE

Location.—This project is in the south central portion of Colorado, embracing an area of approximately 868 square miles in the counties of Rio Grande, Saguache, Alamosa, and Conejos. The cities in the area and their population are as follows: Monte Vista, 3,500; Alamosa, 6,000; Antonito, 1,500. Platoro Dam, the only unit of the project for which operation and maintenance funds are requested, is on the Conejos River in Conejos County at an elevation of approximately 10,000 feet.

General conditions.—Platoro Dam and Reservoir which was recently completed, has a storage capacity of 60,000 acre-feet of which 54,000 acre-feet are tentatively allocated to irrigation and 6,000 acre-feet to flood control. Supplemental irrigation water will be provided for a gross acreage of 86,150 acres. Sixty percent of the construction cost (approximately $2,520,000) of Platoro Dam is covered by a repayment contract, dated March 31, 1949, with the Conejos Water Conservancy District. The district will repay that portion of the cost over a period of 40 years, following the close of a 5-year development period. Water service charges collected from the water users during the development period will be for operation and maintenance costs only of Platoro Dam and Reservoir.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$9, 300	+$9, 300
For normal operation and maintenance of Platoro Dam and Reservoir.		
Total obligations, irrigation	9, 300	+9, 300
Total obligations, all facilities	9, 300	+9, 300

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
IRRIGATION FACILITIES			
Operation and maintenance: Storage system	----------	----------	$9, 300
Total obligations, irrigation	----------	----------	9, 300
Total obligations, all facilities	----------	----------	9, 300
Method of financing: Allotment required	----------	----------	9, 300

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area: Supplemental	Acres			86,150
Total	do			86,150
Cultivated area (total)	do			72,000
Gross crop value	Dollars			$2,600,000
Average gross crop value per cultivated acre.	do			$36
Income to repay operation and maintenance costs.	do			$9,300
Storage dams and reservoirs	Number			1

BOISE PROJECT, IDAHO

Mr. KIRWAN. The Boise project of Idaho is to be considered next.

The allotment for fiscal year 1952 is $404,000 and $560,400 is being requested in 1953.

At this point pages 108 through 115 of your justification will be inserted into the record.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$297,442
Allotment, fiscal year 1952:	
Irrigation	195,000
Power	209,000
Funds advanced by water users	20,000
Total obligations, 1952	424,000
Allotment, fiscal year 1953:	
Irrigation	253,600
Power	306,800
Funds advanced by water users	20,500
Total obligations, 1953	580,900

JUSTIFICATION OF ESTIMATE

Location.—The Boise project is located principally in the Boise, Payette, and Snake River Valleys of southwestern Idaho.

General conditions.—There are a total of 223,962 acres of land in the project area. The water users operate and maintain the distribution works serving all of this acreage except for the 52,760 acres comprising the Payette division. In addition, there are 125,303 acres furnished supplemental water. Water supply for the Payette division, 52,760 acres adjacent to and north of Caldwell, Idaho, is obtained from storage in the 700,000 acre-foot Cascade Reservoir located some 80 miles to the north of the project area on the North Fork of the Payette River near Cascade, Idaho. Water released for irrigation is diverted at Black Canyon Dam, located some 7 miles above Emmett, Idaho, on the Payette River, through the Black Canyon main canal. Irrigation of the project lands from the Black Canyon main canal is by gravity diversion to 27,760 acres and by pumping to 25,000 acres.

In addition to Cascade Dam and Reservoir, storage reservoirs for irrigation purposes include Arrow-rock Dam and Reservoir on the Boise River and Anderson Ranch Dam and Reservoir on the South Fork of the Boise River.

Power facilities within the project are as follows:

Plant	Number of units	Total capacity, kilowatts
Black Canyon	2	8,000
Boise River diversion	3	1,500
Anderson Ranch	2	27,000
Total kilowatts		36,500

In addition, Deadwood Dam and Reservoir located on the Deadwood River is part of the power system, regulating river flows for generation purposes at Black Canyon power plant. There are 53.8 miles of Government-owned transmission lines within the project power system together with six substations having a combined kilovolt-ampere capacity of 79,950.

Direct allotments are requested for operation and maintenance of the following phases of the project:

(*a*) Payette division irrigation facilities serving water to 52,760 acres of irrigable lands and the portion of cost of operation and maintenance of Anderson Ranch Dam and Reservoir allocable to irrigation features.

(*b*) Black Canyon Dam and power plant, Boise River diversion power plant, Deadwood Dam, Anderson Ranch Dam and power plant, and transmission expense under wheeling arrangements with the Idaho Power Co. and the Government power pool.

The Secretary of the Interior, by Public Notice No. 46, dated March 5, 1951, provided that water was to be furnished to the Payette division for the 1951 irrigation season only on a temporary rental basis. The water-rental charges under Public Notice No. 46 are sufficient to pay in advance all the costs of operation and maintenance, including the cost of pumping power, and an amount of $1.70 per irrigable acre toward return of construction costs. Negotiations for an amendatory irrigation repayment contract are continuing.

On December 15, 1950, a contract was entered into with the Idaho Power Co., which, among other things, provides for transmission of Government-produced power over the company's lines. The Government power pool facilities under this arrangement comprise the Boise project power plants and the seventh unit of the Minidoka project. The Boise project will finance the transmission, or wheeling costs over the power company's lines and transfer the applicable portion of these costs to the Minidoka project without an exchange of funds. Reimbursement to the Government will be accomplished by the application of a power rate for energy delivered to respective Government power customers.

Funds advanced by water users will cover operation and maintenance of the reserved works consisting of Arrowrock Dam and Reservoir and Boise River diversion dam and headworks.

The Payette division is now essentially complete and is rapidly being developed. During the 1950 season 36,519 acres of the 52,760 within the area were cultivated. These lands produced crops valued at $1,869,837, an average of $51.20 per acre.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$31,390	+$2,210
For continued operation and maintenance of Arrowrock Dam and Reservoir, Cascade Dam and Reservoir, and the portion of Anderson Ranch Dam and Reservoir chargeable to irrigation facilities. The increase over 1952 is to cover annual salary raises of classified employees and to provide for seasonal labor for cleanup and repair work.		
Carriage system	44,910	+2,540
For normal operation and maintenance of the carriage system. The increase is due to annual salary increases to classified employees and cost of additional seasonal labor for repair of concrete linings.		
Distribution system	160,360	+34,170
For continued operation and maintenance of the distribution system. Increase over 1952 is necessary to cover additional maintenance of canals and laterals such as mossing, weed control, and structure repair to insure operating at designed capacities and maximum efficiency to meet the increasing water demands.		
Drainage system	11,840	+6,080
For normal maintenance of the drainage system. The increase over the 1952 requirements is necessary to maintain the expanded drain facilities.		
Replacements and improvements	25,600	+14,100
The amount requested will provide for replacement of 2 pick-ups, 2 trucks, 1 jeep, and a ditching machine, and for acquisition of a heavy-duty trailer.		
Total obligations, irrigation	274,100	+59,100
POWER FACILITIES		
Electric generation	165,700	+1,800
For normal operation and maintenance of the Black Canyon, Boise River diversion, and Anderson Ranch Dam power plants and facilities and Deadwood Dam and Reservoir. The small increase over 1952 is to cover normal salary increases to classified employees.		
Transmission and distribution expense	133,550	+100,400
For normal operation and maintenance of the transmission and distribution system. The increase of $100,400 over 1952 is to cover financing of transmission charges to the Idaho Power Co. under the pooling plan. Under this plan, operating under contract 174r–1506, dated Dec. 15, 1950, the Boise project will finance all transmission costs of Government power over the Idaho Power Co.'s line.		
Replacements and improvements	7,550	−4,400
The amount requested will provide miscellaneous shop tools and testing and line equipment.		
Total obligations, power	306,800	+97,800
Total obligations, all facilities	580,900	+156,900

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year, 1951 (2)	Program current year, 1952 (3)	Program budget year, 1953 (4)
IRRIGATION FACILITIES			
Operation and maintenance:			
Storage system	$15,606	$29,180	$31,390
Carriage system	39,110	42,370	44,910
Distribution system	109,462	126,190	160,360
Drainage system		5,760	11,840
Replacement and improvements	8,928	11,500	25,600
Total obligations, irrigation	173,106	215,000	274,100
POWER FACILITIES			
Operation and maintenance:			
Electric generation	108,841	163,900	165,700
Transmission and distribution expense	3,638	33,150	133,550
Replacement and improvements	11,857	11,950	7,550
Total obligations, power	124,336	209,000	306,800
Total obligations, all facilities	297,442	424,000	580,900
Method of financing:			
Allotment	315,900	404,000	
Unobligated balance	−33,797		
Allotment required			560,400
Funds advanced by water users	15,339	20,000	20,500

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acre	223,962	224,000	224,000
Supplemental	do	125,303	125,303	125,303
Total	do	349,265	349,303	349,303
Cultivated area (total)	do	306,644	310,000	310,000
Gross crop value	Dollar	$25,744,938	$26,000,000	$26,000,000
Average gross crop value per cultivated acre.	do	$84	$84	$84
Income to repay operation and maintenance costs.	do	$173,006	$215,000	[1] $265,500
Storage dams and reservoirs	Number	5	5	5
Division dams	do	2	2	2
Pumping plants	do	5	5	5
Canals	Mile	557	557	557
Laterals	do	1,267	1,270	1,270
Drains	do	496	510	530
Telephone lines	do	304	307	307
Operating roads	do	981	984	984
Power system:				
Annual sales	Kilowatt-hour	102,752,361	192,000,000	192,000,000
Total power revenues	Dollar	$156,196	$599,100	$641,900
Power plants	Number	3	3	3
Plant capacity	Kilowatt	23,000	36,500	36,500
Patrol roads	Mile	23	23	23
Transmission lines	do	54	54	54
Substations	Number	17	17	17

[1] Payette division only.

MINIDOKA PROJECT, IDAHO

Mr. KIRWAN. The Minidoka project in the State of Idaho is the next item to be discussed: $316,900 was allotted in fiscal year 1952 and the sum of $362,000 is requested in 1953.

Please insert pages 116 through 123 of your justification into the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$421,059
Allotment, fiscal year 1952:	
Irrigation	50,000
Power	266,900
Funds advanced by water users	123,500
Total obligations, 1952	440,400
Allotment, fiscal year 1953:	
Irrigation	51,800
Power	310,200
Funds advanced by water users	94,000
Total obligations, 1953	456,000

JUSTIFICATION OF ESTIMATE

Location.—The Minidoka project includes more than 1,000,000 acres bordering the Upper Snake River in south central and eastern Idaho. It extends from Jackson Lake and Grassy Lake Reservoirs in the Jackson Hole country of northwestern Wyoming downstream approximately 300 miles to the town of Gooding in south central Idaho.

General conditions.—The Minidoka project provides a full or supplemental water supply to more than 1,000,000 acres of irrigable land from five reservoirs with a combined capacity of 2,784,625 acre-feet of storage space, and includes a 13,400-kilowatt power plant and 105.9 miles of transmission lines which provide irrigation pumping power to the south side pumping division of the project and which also serves several communities in the project area.

The initial development of the project, beginning in 1904, included the multipurpose Minidoka Dam and power plant, two major canal systems, and Jackson Lake Reservoir for additional project storage.

Subsequent major developments include enlargement of Jackson Lake Reservoir (1913–16); construction of American Falls Dam (1925–27); the Gooding division, consisting primarily of a 70-mile canal and laterals for approximately 20,500 acres of land (1927–51); and the Upper Snake River division (1935–40), consisting of the Island Park and Grassy Lake Dams.

Operation and maintenance activities of project reserved works are financed by congressional appropriations of reclamation funds and advances made by project water users. The appropriated funds are used to finance that proportion of the annual costs chargeable (1) to the Minidoka irrigation district (gravity division); (2) to the storage space in American Falls Reservoir reserved by the United States for future project development, currently being leased annually to Warren Act contractors; and (3) to the power plant and transmission system. Reimbursement for these expenditures is made to the reclamation fund in the following manner, respectively: (1) by collection from the Minidoka irrigation district following the determination of the previous year's cost in accordance with provisions of the 1916 repayment contract with that district; (2) through advanced water-rental collections received from the various individuals and organizations to whom the 433,000 acre-feet of storage water is leased each year; and (3) through power revenues received from the several contractors served by the power system. The rehabilitation and betterment program for the power system is financed through appropriated reclamation funds reimbursed through reservations of net power revenues.

Repayment to the United States of the irrigation construction cost of the various project features is provided for in several contracts with the water users. Costs of the Gravity division are being repaid under 20-year water right contracts with the several hundred individual water users; joint obligation contracts have been negotiated with the American Falls Reservoir district No. 2, the Fremont-Madison irrigation district, and with the Burley irrigation district. A small group of nonconsenters in the latter district have repaid construction cost with few exceptions. Only the American Falls Reservoir district No. 2 and the Fremont-Madison irrigation district have substantial outstanding obligations to repay.

The Minidoka power plant, in operation since 1909, consists of seven generating units, the cost of six units (8,400 kilowatts) being allocated to the Burley and Minidoka irrigation districts. Cost to the United States of the seventh unit (5,000 kilowatt) is being returned from power revenues. The transmission system, consisting of 105.9 miles of high tension lines, distributed energy to project irrigation and drainage pumps and to 28 customer organizations, including other Government agencies, municipalities, cooperatives, industries, and utilities. The system is interconnected with the Idaho Power Co.'s system, and by wheeling contract with Idaho Power, to the Boise project system, to facilitate interchange of power and sale of surplus power through pooling arrangements.

During fiscal year 1951, the power system delivered approximately 133,684,195 kilowatt-hours of energy for a gross revenue of $478,668. The Government operates the power system and distributes each year's net power revenues of the first six units to the Burley and Minidoka irrigation districts in accordance with contract provisions and the Fact Finders' Act. These net revenues have been reserved since 1947 to reimburse reclamation fund appropriations expended on the rehabilitation and betterment program. The latter program initiated in 1947 will be substantially completed by the end of fiscal year 1953. This program is accomplishing the reconditioning and modernization of the power system which was delayed during the war years when repairs and replacements had to be curtailed to a minimum due to scarcity of materials and manpower.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$87,880	+$1,794
Normal operations and maintenance of the 5 project reservoirs, to store and provide water to the 4 operating irrigation districts, forming the Gravity, South Side Pumping, Gooding, and Upper Snake River divisions of the project and the 36 Warren Act contractors who receive supplemental water.		
Carriage system	----------	−22,000
The reduction in the program from $22,000 in 1952 to zero for fiscal year 1953 is because of the anticipated plan to finance all power operation and maintenance activities from direct appropriated power revenues and treat advances from water users for pumping power cost as an electric revenue. This item beginning with fiscal year 1953 will be carried only as a power facility program cost and will not be included in the irrigation facility program.		
Replacements and improvements	57,920	−7,494
For a new storage shed at Minidoka Dam, additional construction on the residence at Jackson Lake, rehabilitation of Minidoka Camp roads, right-of-way purchase on Jackson Lake, waterproofing American Falls Dam, rehabilitation of the Minidoka Dam spillway; replace 1 automobile, 1 truck, 2 pick-ups, small tractor, and office equipment.		
Total obligations, irrigation	145,800	−27,700
POWER FACILITIES		
Electric generation	78,715	+9,209
For normal operation and maintenance of the Minidoka power plant. Increase due to procurement of an adequate supply of replacement parts necessitated by normal growth of the power system and to increased labor costs.		
Other production expense	273,000	+44,000
For the purchase of power to meet power system demand in excess of plant capacity. Increase due to anticipated system load growth. This item requires no funds from Minidoka project but represents nonappropriation transfer from Government-owned power plants. Repayment to be accomplished by the application of a power rate for energy delivered to respective power customers.		
Transmission and distribution expense	87,505	−28,162
For normal operation and maintenance of transmission facilities. The decrease generally represents a change in funds required by the Minidoka project brought about by the method of financing wheeling payments to the Idaho Power Co. on interchange power with other Government power plants in the area. To simplify accounting procedures as well as relations with the power company, all such payments are to be made from one Government office (Boise project) with the costs being distributed by nonappropriation transfer. In fiscal year 1952 the Minidoka project will transfer approximately $45,026 to the Boise project for payment to the Idaho Power Co. for wheeling Government-produced power over company lines to Minidoka. In fiscal year 1953, funds for the payment of such wheeling costs are included in the Boise project budget and will therefore be excluded from the Minidoka project appropriation request. However, elimination of the $45,026 wheeling item from the Minidoka project's fiscal year 1953 appropriation request is partially offset by an increase of $16,864 in normal operation and maintenance. This increase is necessary to maintain an adequate supply of replacement parts to meet anticipated normal growth in customer demand on the power system and to cover increased labor costs.		
Replacements and improvements	143,980	+62,253
For completing the switchboard, replacement of the governor oil tanks, and the powerhouse roof; rehabilitate 2 substations and make miscellaneous replacements to the system; purchase an annunciator board, spare transformers, carrier and telemetering equipment, a switchyard crane, and replacement of electrical test equipment.		
Subtotal, power	583,200	+87,300
Project energy interchange (net)	−273,000	−44,000
Credit for sale of power due to project energy interchange.		
Total obligations:		
Power	310,200	+43,300
All facilities	456,000	+15,600

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$58,471	$86,086	$87,880
Carriage system	45,371	22,000	
Replacements and improvements	48,745	65,414	57,920
Total obligations, irrigation	152,587	173,500	145,800
Power facilities:			
Operation and maintenance:			
Electric generation	55,853	69,506	78,715
Other production expense	62,164	229,000	273,000
Transmission and distribution expense	46,136	115,667	87,505
Replacements and improvements	152,562	81,727	143,980
Subtotal, power	316,715	495,900	583,200
Project energy interchange (net)	−48,243	−229,000	−273,000
Total obligations, power	268,472	266,900	310,200
Total obligations, all facilities	421,059	440,400	456,000
Method of financing:			
Allotment	326,200	316,900	
Unobligated balance	−28,497		
Allotment required			362,000
Funds advanced by water users	123,356	123,500	94,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	218,795	218,800	219,000
Supplemental	do	819,870	820,000	820,000
Total	do	1,038,665	1,038,800	1,039,000
Cultivated area (total)	do	986,866	988,100	988,100
Gross crop value	Dollars	$63,900,200	$65,000,000	$65,000,000
Average gross crop value per cultivated acre	do	$65	$66	$66
Storage dams and reservoirs	Number	[1] 5	[1] 5	[1] 5
Diversion dams	do	2	2	2
Canals	Miles	98	98	98
Laterals	do	629	629	629
Drains	do	182	182	182
Telephone lines	do	62	62	62
Operating roads	do	227	227	227
Power system:				
Annual sales	Kilowatt-hour	133,684,195	154,000,000	169,000,000
Total power revenues	Dollars	$478,668	$515,000	$566,000
Power plants	Number	1	1	1
Plant capacity	Kilowatts	13,400	13,400	13,400
Patrol roads	Miles	16	16	16
Transmission lines	do	106	110	110
Substations	Number	29	30	30

[1] One of these dams (Minidoka) provides storage, diversion facilities, and power.

HUNGRY HORSE PROJECT, MONTANA

Mr. KIRWAN. The Hungry Horse project in the State of Montana is to be discussed next.

No request for funds has been made in previous years. The request for fiscal year 1953 is $195,100.

Pages 124 through 127 of the operation and maintenance justification will be inserted into the budget at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		----------
Allotment, fiscal year 1952		----------
Allotment, fiscal year 1953: Power	$195,100	
Total obligations, 1953		$195,100

JUSTIFICATION OF ESTIMATE

Location.—The project is located in Flathead County in northwestern Montana on the south fork of the Flathead River and lies entirely within the Flathead National Forest. The dam site is in a deep, narrow canyon approximately 5 miles southeast of the South Fork's confluence with the main stem of the Flathead River, and the reservoir will extend approximately 34 miles upstream.

General conditions.—When completed, this multiple-purpose project will provide for electric generation, flood control, improvement of navigation, and regulation of river flow. Winter releases of water from the 3,500,000 acre-foot reservoir will increase by 385,000 kilowatts the firm power capacity of existing downstream power plants, and will increase by nearly 500,000 kilowatts the firm power capacities of other power plants to be installed in the future as part of the full development of the Columbia River system.

Total installed capacity at the project will reach 285,000 kilowatts, with initial production by the first generator scheduled for October 1952.

The entire cost of the project, except allocations to flood control, navigation, fish and wildlife protection, and recreation will be repaid by revenues from the sale of power. Preliminary studies indicate that it may be economically feasible to irrigate approximately 60,000 acres of land near the city of Kalispell, in which eventuality low-cost power from the project will be available for pumping water to the land under consideration.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
POWER FACILITIES		
Electric generation	$188,600	+$188,600
For initial operation and maintenance of 2 of the 4 generating units to be installed in the Hungry Horse power plant. Increase due to first year of operation.		
Transmission and distribution expense	6,500	+6,500
For initial operation and maintenance of transmission and distribution facilities. Increase due to first year of operation.		
Total obligations, power	195,100	+195,100
Total obligations, all facilities	195,100	+195,100

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year, 1951 (2)	Program current year, 1952 (3)	Program budget year, 1953 (4)
POWER FACILITIES			
Operation and maintenance:			
Electric generation			$188,600
Transmission and distribution expense			6,500
Total obligations, power			195,100
Total obligations, all facilities			195,100
Method of financing: Allotment required			195,100

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Storage dams and reservoirs	Number			1
Power system:				
Annual sales	Kilowatt-hours			260,000,000
Total power revenues	Dollars			[1] $1,186,000
Power plants	Number			1
Plant capacity	Kilowatts			142,500
Patrol roads	Miles			10
Substations	Number			1

[1] Includes downstream benefits.

NORTH PLATTE PROJECT, NEBRASKA-WYOMING

Mr. KIRWAN. The next project to be considered is the North Platte project, Nebraska-Wyoming.

The amount of $231,600 was allotted in 1952 and the 1953 allotment request is $221,400.

The justification contained on pages 128 through 133 will be inserted into the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$335,091
Allotment, fiscal year 1952:		
Power	$231,600	
Funds advanced by water users	80,000	
Total obligations, 1952		311,600
Allotment, fiscal year 1953:		
Power	$221,400	
Funds advanced by water users	100,000	
Total obligations, 1953		321,400

JUSTIFICATION OF ESTIMATE

Location.—The North Platte project is located along the North Platte River in western Nebraska and eastern Wyoming. The irrigable land covers a territory approximately 100 miles long and 25 miles in width at the widest point. The project encompasses the towns of Torrington, Wyo., and Scottsbluff, Mitchell, Gering, and Bayard, Nebr.

General conditions.—The project's irrigation system is comprised of Pathfinder Reservoir, having a capacity of 1,070,000 acre-feet, and the Guernsey Reservoir,

having a capacity of 48,100 acre-feet. The Whalen diversion dam near Whalen, Wyo., diverts water into the Interstate and Fort Laramie canals. Four irrigation districts operate the distribution system within the project, consisting of 289 miles of main canal and 1,330 miles of laterals. The Bureau of Reclamation operates the reserved works, consisting of Pathfinder and Guernsey Dams and Reservoirs, Whalen diversion dam, and drainage works, from funds advanced by the water users. During fiscal year 1951, there was a total of 375,736 irrigable acres. The power system consists of the Guernsey and Lingle power plants with a combined capacity of 6,200-kilowatt, 18,050-kilovolt-ampere substation capacity, and 220 miles of 34,500-volt transmission lines. The entire system is operated and maintained by project forces from appropriations from the project's power revenues. The power system sold 50,347,918 kilowatt-hours, with a return of $506,061.47 for fiscal year 1951.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$55,900	+$25,400
For continued operation and maintenance of Pathfinder and Guernsey Dams. Increase is due to nonrecurring maintenance work required at Pathfinder Dam.		
Carriage system	38,100	−1,900
For normal operation and maintenance of Whalen diversion dam and the delivery of storage water. Decrease is due to the completion of nonrecurring maintenance at Whalen Dam.		
Drainage system	4,800	−200
For continuation of normal operation and maintenance of the drainage system.		
Replacements and improvements	1,200	−3,300
For completion of the installation of a water system for the superintendent's residence at Pathfinder Dam.		
Total obligations, irrigation	100,000	+20,000
POWER FACILITIES		
Electric generation	146,000	+36,000
For normal operation and maintenance of Guernsey and Lingle power plants. Increase is due to nonrecurring maintenance work and wage board salary increases.		
Other production expense	150,000	+18,000
For purchase of power. Increase is due to additional power demands from North Platte customers.		
Transmission and distribution expense	60,000	+15,000
For normal operation and maintenance of transmission and distribution facilities. Increase due to nonrecurring maintenance and wage board salary increases.		
Replacements and improvements	25,400	−51,200
For rewiring drum-gate structure at Guernsey; replacement of turbine bearing in unit No. 2 at Guernsey; reconstruct 5 miles of Guernsey-Lingle south line; connections for new power customers; procurement and installation of 2-potential transformers at Guernsey; installation of electrical heating of Guernsey Camp; and the replacement of 1 pickup truck.		
Subtotal, power	381,400	+17,800
Project energy interchange (net)	−160,000	−28,000
Credit for sale of power due to project energy interchange.		
Total obligations, power	221,400	−10,200
Total obligations, all facilities	321,400	+9,800

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$20,218	$30,500	$55,900
Carriage system	62,684	40,000	38,100
Drainage system	891	5,000	4,800
Replacements and improvements		4,500	1,200
Total obligations, irrigation	83,793	80,000	100,000
Power facilities:			
Operation and maintenance:			
Electric generation	154,897	110,000	146,000
Other production expense	117,029	132,000	150,000
Transmission and distribution expense	43,587	45,000	60,000
Replacements and improvements	66,854	76,600	25,400
Subtotal, power	382,367	363,600	381,400
Project energy interchange (net)	−131,069	−132,000	−160,000
Total obligations, power	251,298	231,600	221,400
Total obligations, all facilities	335,091	311,600	321,400
Method of financing:			
Allotment	259,750	231,600	
Unobligated balance	−8,452		
Allotment required			221,400
Funds advanced by water users	83,793	80,000	100,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	235,872	235,850	235,850
Supplemental	do	139,864	139,850	139,850
Total		375,736	375,700	375,700
Cultivated area (total)	do	330,682	330,682	330,682
Gross crop value	do	$18,881,576	$18,900,000	$18,900,000
Average gross crop value per cultivated acre.	do	$57	$57	$57
Income to repay operation and maintenance costs.	do	$374,830	$375,000	$375,000
Storage dams and reservoirs	Number	4	4	4
Diversion dams	do	2	2	2
Canals	Miles	289	289	289
Laterals	do	1,330	1,330	1,330
Drains	do	364	364	364
Telephone lines	do	214	214	214
Operating roads	do	54	54	54
Power system:				
Annual sales	Kilowatt-hours	50,347,918	49,700,000	53,000,000
Total power revenues	Dollars	$506,061	$340,000	$360,000
Power plants	Number	2	2	2
Plant capacity	Kilowatts	6,200	6,200	6,200
Patrol roads	Miles	220	220	220
Transmission lines	do	220	220	220
Substations	Number	6	6	6

RIO GRANDE PROJECT, NEW MEXICO-TEXAS

Mr. KIRWAN. To be discussed next is the Rio Grande project located in the States of New Mexico and Texas.

The allotment for 1952 is $721,100 while the operation and maintenance allotment request for 1953 is $1,197,300.

Please insert into the record at this point pages 134 through 139 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$1,288,167
Allotment, fiscal year 1952:	
Power	721,100
Funds advanced by water users	1,005,000
Total obligations, 1952	1,726,100
Allotment, fiscal year 1953:	
Power	1,197,300
Funds advanced by water users	970,000
Total obligations, 1953	2,167,300

JUSTIFICATION OF ESTIMATE

Location.—The Rio Grande project is situated in the counties of Bernalillo, Torrence, Valencia, Socorro, Sierra, Grant, Luna, Dona Ana, Ortero, and Lincoln in the State of New Mexico, and El Paso in the State of Texas. By far the largest part of the project lies within the Basin of the Rio Grande. A small part of the Alamogordo-Hollywood transmission line, lying in Lincoln County, N. Mex., is in the Pecos River Basin. A portion of the Elephant Butte-Demming-Central transmission line lies in the Mimbres River Valley, a closed basin, and a third small part of the Belen-Willard transmission line lies in a closed basin of the Estancia Valley. The project headquarters is in the city of El Paso, Tex., 125 miles south of the Elephant Butte Dam. The city of Albuquerque, N. Mex., is the most northerly reach of the transmission system and lies some 140 miles north of the Elephant Butte Dam. The irrigable area of the project lies entirely south of the Elephant Butte Dam; whereas, the transmission line network covers the entire project.

General conditions.—The Rio Grande project is one of the oldest in the Bureau of Reclamation, having been approved by the Secretary of the Interior on December 2, 1905. The irrigation division with an area of 159,650 acreas is fully developed and the expenses thereof are those incident to normal operation and maintenance with some funds being expended in improvement of temporary structures and a very occasional extension of canals, laterals, or drains. There are six diversion dams or main canal headings, 617 miles of diversion and distribution canals and 490 miles of drainage ditches, with approximately 10,000 appurtenant structures. Two storage reservoirs are operated by the power division. The extremely long and narrow geographical shape of the irrigation division, being approximately 141 miles long and of varying width up to 5 miles, creates a comparatively difficult transportation problem. While the network of roads is excellent, the long distances from headquarters and field yards requires a larger fleet of service cars and trucks than would otherwise be necessary.

The irrigation division expenses are financed through funds advanced by the water users, there being two organizations, the Elephant Butte irrigation district comprising all lands within the State of New Mexico, and the El Paso County water improvement district No. 1, those lands lying within the State of Texas. In addition to the above, the project is required by international treaty to furnish 60,000 acre-feet annually to the Juarez Valley, Republic of Mexico, and has a Warren Act contract covering excess and waste waters with the Hudspeth County reclamation and conservation district, Hudspeth County, Tex., which has an irrigable area of 19,000 acres of land.

Construction of the power division commenced in 1938 with the first power delivery being made in December 1941, and is still continuing with construction of the extension of the transmission system from Socorro to Albuquerque and from Belen to Willard. There is one power plant, consisting of three 8,100 kilowatt units located at Elephant Butte Dam from which 512 miles of 115 kilovolt transmission lines radiate in all directions. Deliveries are made through 12 substations, 11 of which are maintained by the project for service to 3 private utility companies, 6 publicly owned utilities, and 2 military defense establishments. The transmission lines traverse extremely rough, isolated terrain, and the inspection and maintenance thereof is over patrol roads constructed and maintained by the Bureau. The rough character of the country, plus the dry character of the weather, result in a continual struggle to maintain the transmission lines in a taut shape. The cost of operating the power division is appropriated from funds received from power revenues.

Work proposed, fiscal year 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Carriage system	$38,000	+$14,000
For the continuation of normal operation and maintenance of the Percha, Leasburg, and Mesilla diversion dams, and the Franklin, Riverside, and Tornillo Headings. Increase is due to increased maintenance required and to increase in labor and material costs.		
Distribution system	646,000	+49,000
For the continuation of normal operation and maintenance of the project canal and lateral system. Increase is due to increased maintenance and to increased labor and material costs.		
Drainage system	53,000	−40,000
For the continuation of normal operation and maintenance of the drainage system. Decrease is due to decreased maintenance of structures.		
Replacements and improvements	233,000	−58,000
To provide for the replacement of worn-out timber structures on the canals, laterals, and drains, and the purchase of additional heavy equipment, and the replacement of obsolete and worn-out heavy equipment. Decrease is due to decrease in amount of heavy equipment purchased and replaced.		
Total obligations, irrigation	970,000	−35 000
POWER FACILITIES		
Electric generatign	112,500	+12,000
To provide for continuation of operation and maintenance of the Elephant Butte power plant. Increase is due to increased costs of labor and material.		
Other production expense	931,200	+407,360
To provide for the purchase of electric energy for resale to firm-power contractors. Increase is due to low level of water in storage reservoir following a protracted drought period, resulting in reduced generation.		
Transmission and distribution expense	74,900	+6,500
To provide for the continued operation and maintenance of the transmission lines and substations. Increase is due to increased labor and material costs.		
Replacement and improvements	78,700	+50,340
To provide for the replacement of heavy equipment and the purchase of mobile radio equipment. Increase is due to deferred purchases and replacements from fiscal year 1952.		
Total obligations, power	1,197,300	+476,200
Total obligations, all facilities	2,167,300	+441,200

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Carriage system	$32,854	$24,000	$38,000
Distribution system	562,161	597,000	646,000
Drainage system	59,163	93,000	53,000
Replacements and improvements	203,548	291,000	233,000
Total obligations, irrigation	857,726	1,005,000	970,000
Power facilities:			
Operation and maintenance:			
Electric generation	108,803	100,500	112,500
Other production expense	164,963	523,840	931,200
Transmission and distribution expense	53,521	68,400	74,900
Replacements and improvements	103,154	28,360	78,700
Total obligations, power	430,441	721,100	1,197,300
Total obligations, all facilities	1,288,167	1,726,100	2,167,300
Method of financing:			
Allotment	276,100	721,100	
Unobligated balance	−8,761		
Allotment, emergency fund, irrigation and power systems	163,102		
Allotment required			1,197,300
Funds advanced by water users	857,726	1,005,000	970,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres [1]	159,650	159,650	159,650
Supplemental	do.[2]	18,358	18,350	18,350
Total	do	178,008	178,000	178,000
Cultivated area (total)	do	176,556	177,000	177,000
Gross crop value	Dollars	$49,863,819	$50,000,000	$50,000,000
Average gross crop value per cultivated acre	do	$822	$282	$282
Income to repay operation and maintenance costs	do	$858,334	$1,005,000	$970,000
Storage dams and reservoirs	Number	2	2	2
Diversion dams [3]	do	5	5	5
Canals	Miles	147	147	147
Laterals	do	470	470	470
Drains	do	490	490	490
Operating roads	do	470	470	470
Power system:				
Annual sales	Kilowatt-hours	64,935,913	65,000,000	110,000,000
Total power revenues	Dollars	$407,421	$1,020,780	$1,269,350
Power plants	Number	1	1	1
Plant capacity	Kilowatts	24,300	24,300	24,300
Patrol roads	Miles	300	435	435
Transmission lines	do	383	512	512
Substations	Number	9	11	11

[1] Total full irrigation is acreage allowed for full water right by treaty stipulation between the States of Colorado, New Mexico, and Texas and equals 155,000 acres plus a 3 percent cushion to allow for uncultivated lands.

[2] Suspended or nonwater right land susceptible of cultivation.

[3] One diversion dam, the American diversion dam, is owned, operated, and maintained by the International Boundary and Water Commission.

DESCHUTES PROJECT, OREGON, NORTH UNIT

Mr. KIRWAN. The next project is the North Unit of the Deschutes project in the State of Oregon.

$180,000 is the amount allotted for 1952 while the operation and maintenance allotment request for 1953 is $193,000.

Please insert pages 140 through 144 of the justification in the record at this time.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$189,968
Allotment, fiscal year 1952: Irrigation	180,000
Total obligations, 1952	180,000
Allotment, fiscal year 1953: Irrigation	193,000
Total obligations, 1953	193,000

JUSTIFICATION OF ESTIMATE

Location.—The Deschutes project is located in central Oregon east of the Cascade Mountains. The North Unit, now under construction but nearing completion by the Bureau of Reclamation, surrounds the city of Madras, and is situated on the east side of the Deschutes River in Jefferson County, Oreg.

General conditions.—Water supply for the North Unit of the Deschutes project is stored in Wickiup Reservoir on the Deschutes River 65 miles south of the project lands. The project also furnishes supplemental water to about 46,500 acres of private irrigation district lands in Deschutes and Crook Counties from the Crane Prairie Reservoir, which was reconstructed by the Bureau in 1940, and to 2,500 acres of the Lone Pine irrigation district under the Warren Act or special contracts.

Water released from Wickiup Reservoir (capacity 187,000 acre-feet) is diverted from the river at Bend, thence traversing 30 miles of main canal to a point near Terrebonne, Oreg., where irrigation distribution begins. An additional 35 miles of main canal and a lateral system of 235 miles serves to distribute the water to project lands. The total irrigable area is 96,713 acres. No additional or supplemental acreage is planned. Prior to irrigation development, practically the entire area was dry-farmed in relatively large acreages. Since the coming of irrigation, the size of the farm units has been reduced to provide economic-size irrigation units and to conform to the 160-acre limitation.

The North Unit main canal, distribution system, and Wickiup Reservoir are operated by the Bureau with funds supplied by direct appropriation. Irrigation water is delivered on a rental basis. Provisions for repayment of construction costs are covered by contract between the United States and the North Unit irrigation district. A contract with the Central Oregon irrigation district provides for repayment of the costs of reconstructing Crane Prairie Reservoir.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$11,783	+$263
For continued operation and maintenance of Wickiup Reservoir.		
Carriage system	56,431	+1,711
For continuation of normal operation and maintenance of north unit canal.		
Distribution system	89,053	+2,653
For continuation of normal operation and maintenance of the north unit lateral system.		
Drainage system	1,468	+748
For continuation of normal operation and maintenance of a drainage system. Increase is due to additional drains to be placed in service.		
Replacements and improvements	34,265	+7,625
For replacing 2 pick-up trucks, 2 dump trucks, 1 dragline, and minor miscellaneous equipment.		
Total obligations, irrigation	193,000	+13,000
Total obligations, all facilities	193,000	+13,000

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year, 1951 (2)	Program current year, 1952 (3)	Program budget year, 1953 (4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$14,492	$11,520	$11,783
Carriage system	42,289	54,720	56,431
Distribution system	86,067	86,400	89,053
Drainage system	649	720	1,468
Replacements and improvements	46,471	26,640	34,265
Total obligations, irrigation	189,968	180,000	193,000
Total obligations, all facilities	189,968	180,000	193,000
Method of financing:			
Allotment	190,400	180,000	----------
Unobligated balance	−432	----------	----------
Allotment required	----------	----------	193,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	50,000	50,000	50,000
Supplemental	do	[1] 46,713	49,000	49,000
Total	do	96,713	99,000	99,000
Cultivated area (total)	do	89,307	93,000	93,000
Gross crop value	Dollars	$9,149,779	$10,425,000	$11,000,000
Average gross crop value per cultivated acre	do	$102	$112	$118
Income to repay operation and maintenance costs	do	$194,277	$195,000	$190,000
Storage dam and reservoirs	Number [2]	2	2	2
Canals	Miles [3]	65	65	65
Laterals	do	235	235	235
Drains	do	10	10	12
Telephone lines	do	20	20	20
Operating roads	do	300	300	300

[1] Acreage in old established irrigation districts.
[2] Includes Crane Prairie Reservoir which furnishes supplemental water.
[3] Following data apply to north unit only.

KLAMATH PROJECT, OREGON-CALIFORNIA

Mr. KIRWAN. The Klamath project will be considered next.

The operation and maintenance allotment for 1952 was $329,600 and the requirement for 1953 is estimated to be $346,300.

Please insert into the record pages 145 through 149 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$504,797
Allotment, fiscal year 1952:	
Irrigation	329,600
Funds advanced by water users	215,400
Total obligations, 1952	545,000
Allotment, fiscal year 1953:	
Irrigation	346,300
Funds advanced by water users	222,700
Total obligations, 1953	569,000

JUSTIFICATION OF ESTIMATE

Location.—The Klamath project is located in Klamath County in south central Oregon and Siskiyou and Modoc Counties in north-central California. The project works supply irrigation water to the project as a whole and also provide flood control on Lost River for the reclaiming and protection of lands in Tule Lake, a land-locked lake with no outlet, normally receiving all of the flow of Lost River. The project water supply comes from three storage reservoirs with a total capacity of 1,056,500 acre-feet.

General conditions.—The Klamath project was authorized by the Secretary of the Interior on May 15, 1905. Construction began in 1906, and water was first delivered to project lands on the Main division May 16, 1907.

Since that date the area of land receiving water has been almost constantly increasing until now the lands for which water service is available approximate 209,500 acres. Full irrigation supplies are available to 85,429 acres of project lands with the balance supplied under the Warren Act and other special contracts.

The Bureau of Reclamation is the operating agency for all project works. The Klamath irrigation district is the contracting agency for the collection of construction, operation, and maintenance charges for those lands of the Main and Tule Lake divisions lying within the State of Oregon. Lands of the Tule Lake division within the State of California are on a water-rental basis until such time as an irrigation district can be organized, which organizational plans have been initiated. Warren Act contractors, special contracts, and water-rental areas make direct payments to the Bureau.

The project is directing full energies toward a program of catching up on deferred maintenance which dates from the period of World War II. The structures on a large part of the project date from 1920 to 1930 and were getting to need maintenance to the extent of major overhaul or sometimes replacement. This work is, in general, being done as though it were entirely normal maintenance; hence, the elimination of the item of replacements and improvements, which in 1952 consisted of a major rehabilitation contract on part of the dikes confining the water in Tule Lake restricted sump.

Another item of major endeavor is the increase in the weed-control program as it affects weeds on ditch banks and water weeds and moss in the waterways. Removal of these weeds is of increasing importance since the canals and laterals, with the growth of the project, are approaching their maximum carrying capacity and retardation of flow cannot be tolerated. The increasing efficiency of chemical weed eradicators makes it urgent that this program be pressed, since now good results can be obtained with a minimum of personnel cost. Mechanization of this work and of other necessary activities is necessary and expedient in meeting the personnel restrictions which are being imposed.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$11,925	+$785
For continued operation of three reservoirs and dams. Increases due to proportional part of project equipment and stores.		
Distribution system	349,320	+29,182
Continued operation of large distribution system, with accent on replacement of obsolete structures, increased weed control program, improvement and increased maintenance of roads, mechanization of headgate, and proportional part of added equipment, also personnel salary increases of 1951.		
Drainage system	177,355	+27,262
Operation and maintenance to include increasing program of structure replacement and of ditch cleaning. 1 pump-house substructure to be completely replaced. Salary increases of 1951.		
Replacements and improvements	30,400	−33,296
Provides for replacement of pick-up trucks and dump trucks, and for the acquisition of 1 dragline, 1 motor grader, and one paint sprayer. Decrease in total of this item is due to completion of contract for dike rehabilitation.		
Total obligations, irrigation	569,000	+24,000
Total obligations, all facilities	569,000	+24,000

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year 1951	Program current year 1952	Program budget year 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$10,621	$11,140	$11,925
Distribution system	292,792	320,138	349,320
Drainage system	184,813	150,093	177,355
Replacements and improvements	16,571	63,629	30,400
Total obligations, irrigation	504,797	545,000	569,000
Total obligations, all facilities	504,797	545,000	569,000
Method of financing:			
Allotment	329,600	329,600	
Unobligated balance	−51,144		
Allotment required			346,300
Funds advanced by water users	226,341	215,400	222,700

Project statistics

Feature or item	Unit	Actual fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	85,429	85,429	85,429
Supplemental	do [1]	124,080	124,080	124,080
Total	do [1]	209,509	209,509	209,509
Cultivated area (total)	do	191,928	192,500	192,500
Gross crop value	Dollars	$17,282,333	$18,000,000	$18,000,000
Average gross crop value per cultivated acre	do	$90	$93	$93
Income to repay O. and M. costs	do	$674,402	$545,000	$550,000
Storage dams and reservoirs	Number	3	3	3
Diversion dams	do	4	4	4
Pumping plants	do	26	28	28
Canals	Miles	120	120	120
Laterals	do	468	468	468
Drains	do	640	640	640
Operating roads	do	335	340	340

[1] Does not include supplemental water being furnished leased lands.

COLUMBIA BASIN PROJECT, WASHINGTON

Mr. KIRWAN. To be discussed next is the Columbia Basin project of Washington.

The allotment for 1952 is $2,386,600 and the estimated requirement for 1953 is $3,409,000.

Please insert pages 150 through 157 of the operation and maintenance budget justification into the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$2,232,049
Allotment, fiscal year 1952:	
Irrigation	35,000
Power	2,351,600
Total obligations, 1952	2,386,600
Allotment, fiscal year 1953:	
Irrigation	149,000
Power	3,260,000
Total obligations, 1953	3,409,000

JUSTIFICATION OF ESTIMATE

Location.—The Columbia Basin project is located in the central portion of the State of Washington, with its major feature, the Grand Coulee Dam, situated on the Columbia River approximately 95 miles west of Spokane, Wash. The area to be irrigated by the project lies generally to the south of the Grand Coulee Dam extending to the vicinity of Pasco, Wash., near the confluence of the Columbia and Snake Rivers, and includes portions of Grant, Adams, Franklin, and Walla Walla Counties.

General conditions.—Columbia Basin project when complete will provide for the irrigation of approximately 1,029,000 acres of new land and production of slightly less than 2,000,000 kilowatts of power generated in the Grand Coulee power plant. Grand Coulee Dam and power plant are currently in operation with the completion of major installations scheduled for fiscal year 1952. Initial project irrigation commenced in fiscal year 1948 with the provision of water for the Pasco pumping unit supplied by supplemental pumping from the Columbia River. Major irrigation facilities which will provide water for practically all project lands have been under construction for a number of years and initial irrigation through the primary facilities is to commence in the spring of 1952 with completion of works for furnishing water to approximately 87,000 acres of irrigable lands, of which about 66,000 acres are to be irrigated initially. Repayment contracts have been negotiated with each of three irrigation districts which have been established within the project area.

All power generated at Grand Coulee Dam, exclusive of power used for project construction and operation is delivered at the switchyards at Grand Coulee Dam to the lines of the Bonneville Power Administration for transmission. Expense of operation, maintenance, and replacements for the dam, power plant, and appurtenant works is financed by appropriations from commercial power revenues, deposited for that purpose each year in the reclamation fund of the United States Treasury by the Bonneville Power Administration, marketing agent for Grand Coulee power and from pumping power revenues paid by the water users. Camp and service facilities at Grand Coulee Dam serve a joint construction and operation and maintenance function. Expense for the operation and maintenance of these facilities is financed in major portion through application of quarters deductions from both construction and maintenance personnel. Additional operating revenues received through cash collections from concessionaires and hospital patients are returned directly to the Treasury. Camp and service facility maintenance and operating cost in excess of revenue is charged in part to project construction cost.

The completion of presently authorized generating installations early in fiscal year 1952 and the concurrent decline in other construction activities will markedly affect future operation and maintenance programs. Economies in power utility operation and maintenance have been effected in past years as a result of the extensive construction activities under way. Most of the necessary maintenance was performed by construction personnel as required and only relatively small maintenance crews were established as such. In addition and because of the relatively small operation and maintenance program in relation to the large amount of construction work under way, construction appropriations were charged with the major portion of the town and camp operating expense at Coulee Dam, and construction appropriations also financed the bulk of the cost of the project general overhead and service operations. As a result of the decline in construction activities, operation and maintenance appropriations commencing with the fiscal year 1952 program will necessarily finance an increasingly large portion of the general project overhead and the Coulee Dam town and camp operating expense. Commencing in fiscal year 1952, it will also be necessary for the operation and maintenance program to maintain substantially larger separate maintenance crews although the full increase in fund requirementsf or this purpose will not occur before fiscal year 1953, since such crews will continue to be used extensively on construction operations throughout most of fiscal year 1952. The over-all effect of the foregoing factors will place the power program on a substantially higher and more normal level than has previously been reflected in operation and maintenance appropriations.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$48,000	+$34,000
For a full year's normal operation and maintenance of the Pasco pumping plant and the Burbank pumping plant. In addition, the program will cover that portion of the cost of operation and maintenance of Grand Coulee pumping plant and the equalizing reservoir during the spring of 1953 chargeable to developent period operation and maintenance.		
Carriage system	21,000	+21,000
For that portion of the initial cost of operation and maintenance of the primary canals chargeable to development period operation and maintenance during the spring of 1953. Included are the main canal to the bifurcation, the west canal through and including the third section, the east low canal through and including the third section and the appurtenant wasteways.		
Distribution system	70,000	+49,000
For normal operation and maintenance of the lateral systems of the Pasco and Burbank pumping units and for initial development period operation and maintenance of the lateral stem which will serve the first blocks to be irrigated by the primary irrigation works. Laterals serving these blocks, which consist of about 66,000 acres in the vicinity of Moses Lake, Ephrata, and Quincy at the northern border of the project, will be completed and operated for testing purposes during the current year and until the commencement of the development period in the spring of 1953.		
Replacement and improvements	10,000	+10,000
For such relatively minor miscellaneous replacements as may become necessary during the fiscal year.		
Total obligations, irrigation	149,000	+114,000
POWER FACILITIES		
Electric generation	1,755,000	+268,400
For continuation of operation and maintenance of Grand Coulee Dam and power plants and appurtenant works; for financing the applicable portion of project general expense and service facility operation and maintenance chargeable to electric generation; and for the continuation of hydrologic and river-control studies. Increase due to higher increment of general overhead and higher and more normal level of maintenance. Increase also includes an allocated portion of additions to the stock of operation and maintenance supplies, materials, and small tools.		
Other production expense	245,000	+84,000
For financing guard expense chargeable to operation and maintenance. Available funds and personnel limitations will hold the guard force far below minimum requirements during fiscal year 1952. Increase in fiscal year 1953 program will provide for a normal force and in addition reflects a minor increase in the portion of the total guard expense to be charged operation and maintenance.		
Transmission and distribution expense	620,000	+366,000
For continuation of normal operation and maintenance of the transforming and switching facilities at Coulee Dam. A $300,000 increase is programed for the "nonbetterment" portion of the cost of proposed circuit breaker rebuilding at Coulee Dam. The increase also provides for allocated portion of the addition to the operation and maintenance stock of supplies, materials and small tools.		
Replacements and improvements	250,000	+105,000
Funds are provided for a reasonable replacement program for a plant of the magnitude of Grand Coulee, including an allocated portion of inventory stock.		
Total obligations, power	2,870,000	+823,400
Nonutility operation and maintenance	390,000	+85,000
For funds necessary to provide for financing the portion of the operating deficit of the town and service facilities at Coulee Dam chargeable to operation and maintenance appropriations and to offset the portion of the cash collections expected to be included in the nonutility operating revenue and deposited in the reclamation fund during fiscal year 1953.		
Total obligations, all facilities	3,409,000	+1,022,400

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year, 1951 (2)	Program current year, 1952 (3)	Program budget year, 1953 (4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$8,412	$14,000	$48,000
Carriage system			21,000
Distribution system	12,152	21,000	70,000
Replacements and improvements			10,000
Total obligations, irrigation	20,564	35,000	149,000
Power facilities:			
Operation and maintenance:			
Electric generation	1,253,503	1,486,600	1,755,000
Other production expense	200,131	161,000	245,000
Transmission and distribution expense	297,841	254,000	620,000
Replacements and improvements	122,364	145,000	250,000
Total obligations, power	1,873,839	2,046,600	2,870,000
Nonutility operation and maintenance	337,646	305,000	390,000
Total obligations, power and nonutility operation and maintenance	2,211,485	2,351,600	3,409,000
Total obligations, all facilities and nonutility operation and maintenance	2,232,049	2,386,600	3,409,000
Method of financing:			
Allotment	2,327,500	2,386,600	
Unobligated balance	−95,451		
Allotment required			3,409,000

Project statistics

Feature or item	Unit	Actual fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	7,025	72,663	132,221
Cultivated area (total)	do	4,350	5,000	30,000
Gross crop value	Dollars	527,330	600,000	3,000,000
Average gross crop value per cultivated area	do	121	120	100
Income to repay operation and maintenance costs.[5]	do	14,500	59,300	205,000
Storage dams and reservoirs.[1]	Number	4	4	4
Pumping plants [2]	do	10	29	36
Transmission lines	Miles	16	16	19
Substations	Number	3	6	13
Substation capacity	Kilovolt-amperes	10,740	11,450	13,000
Canals [3]	Miles	98	167	196
Laterals	do	30	369	623
Drains	do		23	23
Operating roads	do	124	481	725
Power system:				
Annual sales	Kilowatt-hours	12,779,950,200	13,300,000,000	13,300,000,000
Total power revenues [4]	Dollars	10,000,000	10,000,000	10,000,000
Power plants	Number	1	1	1
Plant capacity	Kilowatts	1,866,000	1,974,000	1,974,000
Substations	Number	3	3	3

[1] Grand Coulee Dam is included in the above totals although it is used jointly in the power and irrigation acility operations of the Columbia Basin project. Long Lake Dam, which was completed in fiscal year 1949, serves primarily a transmission and regulating function and is therefore not included in these totals.

[2] The fiscal year 1951 total includes the primary and relift pumping plants at the Pasco and Burbank pumping units in addition to the Grand Coulee pumping plant which commenced operations in fiscal year 1951. Other pumping plants within the irrigation area are included in the totals for the year in which the plants are completed and available for testing purposes. Thus Quincy pumping plant is included in the total for fiscal year 1952 and the Babcock Ridge pumping plant is included in the total for fiscal year 1953 although this plant will not be placed in full operation until the following year.

[3] Totals for this item include miles of completed canals and major wasteways. Full operation of the canal system will start in fiscal year 1953 although the canals will be operated for testing purposes commencing in fiscal year 1952.

[4] There is no fixed rate for Coulee Dam power. Bonneville Power Administration annually deposits in the Treasury funds to cover operation and maintenance, interest, replacements, and certain investment costs in accordance with the memorandum of understanding between Bonneville Power Administration and the Bureau of Reclamation.

[5] These costs are based on graduated charges which are set up to collect the accrued operation and maintenance costs on a project-wide basis for the 10-year development period in each block.

YAKIMA PROJECT, WASHINGTON

Mr. KIRWAN. Next will be the Yakima project, located in the State of Washington.

$515,600 was allotted for fiscal year 1952 and the amount of $525,000 is estimated for 1953.

Please insert into the record at this time pages 158 through 163 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$447,566
Allotment, fiscal year 1952:	
Irrigation	$492,000
Power	23,600
Total obligations, 1952	515,600
Allotment, fiscal year 1953:	
Irrigation	500,000
Power	25,000
Total obligations, 1953	525,000

JUSTIFICATION OF ESTIMATE

Location.—The project is located in south central Washington on the eastern slope of the Cascade Mountains, in the drainage basin of the Yakima River and its tributaries. Irrigated lands occupy a comparatively narrow strip of fertile land in Kittitas, Yakima, and Benton Counties extending from Easton to Kennewick, a distance of about 175 miles. The project office is in Yakima, a city of 38,500 population, located near the center of the Yakima Valley. At the southern end of the project is the tri-city area of Richland, Kennewick, and Pasco, a community of about 50,000 population contiguous to the Hanford plutonium works of the Atomic Energy Commission.

General conditions: This multiple-purpose project, when completed, will provide irrigation water for 475,000 acres of land and will have hydroelectric generating capacity of 22,000 kilowatts. Presently irrigation water is available to 453,535 acres of land and the installed power capacity is 2,400 kilowatts. The water supply is secured from the natural flow of the Yakima River and its tributaries, supplemented by storage in six reservoirs having a combined storage capacity of 1,063,800 acre-feet.

A favorable climate, combined with fertile soil and an excellent irrigation water supply in the Yakima Valley create an area which is well adapted for diversified farming. Yakima County ranks first in the Nation in production of apples, pears, and hops; fifth in production of cherries; and fifth in total agricultural production of all the counties in the United States.

The project is operated by water users organizations, except the storage reservoirs and diversion dams, which are part of the Government reserved works; also the Prosser power system and the 72,000-acre Roza division are Government-operated. Irrigation's share of the cost of Government operation and maintenance of the storage and diversion works is paid currently by the water users. Most of the cost of Government operation and maintenance of the recently completed facilities of the Roza division are also paid currently by the water users. Any deficits in Roza division operation and maintenance costs, as permitted by law, will be paid by the water users before the end of the irrigation development period. Cost of rehabilitation work currently being done on the storage reservoirs will be repaid by contract users of stored water as an operation and maintenance charge over a 20-year period. The Government investment in irrigation and power facilities is all reimbursable, under repayment contracts with irrigation districts or operating organizations. Some of the repayment agreements have been met in full and none are delinquent. For the Roza division, with irrigation facilities recently completed, an interim contract covers the total construction obligation which includes a proposed power plant. The allocation of costs for the Roza irrigation

district is now in process of reanalysis in connection with amendatory contract negotiations with the district. Operation and maintenance of the power system is financed from appropriations from power revenues. Power generated by the Prosser power plant is used for pumping by the Kennewick, Franklin County, and Burbank irrigation districts, with the surplus power being sold to the Pacific Power & Light Co., a private utility.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$83,800	+$4,000
For continued operation and maintenance of the six storage reservoirs.		
Carriage system	74,700	+9,990
For continuation of normal operation and maintenance of the headworks at the diversion dams for the Kittitas, Roza, and Sunnyside divisions and of the Roza main canal and wasteways. Increase is due to rising costs of labor and materials.		
Distribution system	300,700	+26,700
For continuation of normal operation and maintenance of the Roza division gravity and pump lateral systems, including pumping plants, transmission lines, substations, and purchase of power for pumping. Increase is due to increased requirements of power for pumping and to rising cost of labor and materials.		
Drainage system	10,800	+3,310
For normal adequate drainage operation and maintenance. Increase is due to anticipated increased emphasis on drainage maintenance on the project.		
Replacements and improvements	30,000	−36,000
For repair of warehouses at three storage reservoirs, purchase of one motorized road grader and miscellaneous equipment and tools; replacement of two passenger vehicles, five pick-ups and two trucks.		
Total obligations, irrigation	500,000	+8,000
POWER FACILITIES		
Electric generation	24,900	+1,400
For normal operation and maintenance of the Prosser power plant. Increase is due to higher labor costs.		
Transmission and distribution expense	100	----------
For normal operation and maintenance of approximately 1 mile of transmission line.		
Total obligations, power	25,000	+1,400
Total obligations, all facilities	525,000	+9,400

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year 1951	Program current year 1952	Program budget year 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$76,129	$79,800	$83,800
Carriage system	59,732	64,710	74,700
Distribution system	252,491	274,000	300,700
Drainage system	3,613	7,490	10,800
Replacements and improvements	38,425	66,000	30,000
Total obligations, irrigation	430,390	492,000	500,000
Power facilities:			
Operation and maintenance:			
Electric generation	17,176	23,500	24,900
Transmission and distribution expense	----------	100	100
Subtotal, power	17,176	23,600	25,000
Total obligations, all facilities	447,566	515,600	525,000
Method of financing:			
Allotment	454,900	515,600	----------
Unobligated balance	−7,334	----------	----------
Allotment required	----------	----------	525,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	261,962	262,000	262,000
Supplemental	do	191,573	192,000	192,000
Total	do	453,535	454,000	454,000
Cultivated area (total)[1]	do	375,778	386,500	390,000
Gross crop value [2]	Dollars	64,941,261	65,000,000	65,000,000
Average gross crop value per cultivated acre.	do	173	168	167
Income to repay operations and maintenance costs.	do	361,977	375,000	400,000
Storage dams and reservoirs	Number	6	6	6
Diversion dams	do	5	5	5
Pumping plants	do	25	25	25
Canals	Miles	250	250	250
Laterals	do	1,570	1,570	1,570
Drains	do	52	52	54
Telephone lines	do	250	250	250
Operating roads	do	150	150	150
Power system:				
Annual sales	Kilowatt-hours	23,878,092	25,000,000	25,000,000
Total power revenues	Dollars	62,160	63,000	63,000
Power plants	Number	1	1	1
Plant capacity	Kilowatts	2,400	2,400	2,400
Patrol roads	Miles	3	3	3
Transmission lines [3]	do	69	69	69
Substations [4]	Number	20	20	20

[1] Includes all divisions of project.
[2] Includes Kittitas, Tieton, Roza, and Sunnyside divisions (Annual Crop Report).
[3] Roza transmission line 68 miles, Prosser transmission line 1 mile.
[4] Roza substations, 19: Prosser substation, 1.

KENDRICK PROJECT, WYOMING

Mr. KIRWAN. The next project is the Kendrick project in the State of Wyoming.

The 1952 allotment was $568,600 and the O. and M. requirement for 1953 is $525,700.

Pages 164 through 168 of your O. and M. budget justification will be placed in the record at this time.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$519,568
Allotment, fiscal year 1952: Power	$568,600	
Total obligations, 1952		568,600
Allotment, fiscal year 1953: Power	$525,700	
Total obligations, 1953		525,700

JUSTIFICATION OF ESTIMATE

Location.—Kendrick project is located on the North Platte River near Casper, Wyo. Water stored is presently used for power production and the regulation of the North Platte River. Water stored will ultimately be released for irrigation of 20,000 acres from irrigation works nearing completion, with a second unit of 25,000 acres to be developed when adequate water supply is available. Transmission lines are located in northern Colorado, southern and central Wyoming, and western Nebraska. Seminoe power plant is located approximately 60 miles south and west of Casper, Wyo.

General conditions.—Seminoe Dam, major storage structure of the project, has a reservoir capacity of 1,025,000 acre-feet, of which 970,000 acre-feet are

active. Alcova Dam, 34 miles downstream from Seminoe, creates a reservoir of 190,500 acre-feet and diverts water into the Casper canal serving the Kendrick project. The Seminoe power plant, of 32,400-kilowatt capacity, together with 662 miles of transmission lines varying from 4 to 115 kilovolts, and nine substations, with a total capacity of 87,900 kilovolt-amperes, is linked with the transmission system connecting the North Platte, Missouri River Basin, Riverton and Shoshone plants, and plants of the Colorado-Big Thompson project. The Seminoe power plant is operated for the sale of power to municipalities and power companies in Wyoming and western Nebraska. In order that the Kendrick project can produce and deliver a dependable year-round supply of electrical energy to its customers, continuous and adequate operation and maintenance of the power system is necessary. The power system sold 215,706,380 kilowatt-hours, with a total electric income of $1,283,368 during fiscal year 1951.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
POWER FACILITIES		
Electric generation	$132,000	−$17,000
For normal operation maintenance of Seminoe power plant. The decrease is due to completion of nonrecurring maintenance scheduled for fiscal year 1952.		
Other production expense	286,700	+1,100
For purchase of power. Increase is due to the overgrowing demands of the project's power system.		
Transmission and distribution expense	189,000	+6,800
For normal operation and maintenance of transmission and distribution facilities. Increase is due to wage board salary increases given during fiscal year 1952.		
Replacements and improvements	37,000	−14,800
For repair of concrete abutments at outlet of draft tubes; repair of erosion of road on top of dam; install metal landings on machine shop floor; paint generator room walls and ceiling; purchase of spare generator coils; connections for new power customers; installation of oil piping systems at Cheyenne and Gering substations; improve access roads; and replacement of 3 passenger cars.		
Subtotal, power	644,700	−23,900
Project energy interchange (net)	−119,000	−19,000
Credit for sale of power due to project energy interchange.		
Total obligations, power	525,700	−42,900
Total obligations, all facilities	525,700	−42,900

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Power facilities:			
Operation and maintenance:			
Electric generation	$156,939	$149,000	$132,000
Other production expense	441,074	285,600	286,700
Transmission and distribution expense	106,634	182,200	189,000
Replacements and improvements	12,813	51,800	37,000
Subtotal, power	717,460	668,600	644,700
Project energy interchange (net)	−197,892	−100,000	−119,000
Total obligations, power	519,568	568,600	525,700
Total obligations, all facilities	519,568	568,600	525,700
Method of financing:			
Allotment	591,700	568,600	
Unobligated balance	−72,132		
Allotment required			525,700

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Storage dams and reservoirs	Number	7	2	2
Power system:				
Annual sales	Kilowatt-hour	215,706,380	167,000,000	153,000,000
Total power revenues	Dollar	1,283,368	1,110,000	1,020,000
Power plants	Number	1	1	1
Plant capacity	Kilowatt	32,400	32,400	32,400
Patrol roads	Mile	530	603	603
Transmission lines	do	589	662	662
Substations	Number	9	12	12

RIVERTON PROJECT, WYOMING

Mr. KIRWAN. The Riverton project of Wyoming is to be considered next.

The allotment for 1952 is $257,860, while the estimated requirements for fiscal year 1953 is $217,350.

The justification contained on pages 169 through 176 will be placed in the record at this time.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$293,236
Allotment, fiscal year 1952:	
Irrigation	73,000
Power	184,860
Total obligations, 1952	257,860
Allotment, fiscal year 1953:	
Irrigation	79,000
Power	138,350
Total obligations, 1953	217,350

JUSTIFICATION OF ESTIMATE

Location.—The Riverton project is located in Fremont County, Wyo., on the ceded portion of the Wind River Indian Reservation. It lies near the center of the Wind River Basin, north and northwest of Riverton; a modern town of 4,100 population on the C. & N. W. Railroad and on State Highway No. 320.

General conditions.—This project was authorized by the Secretary of the Interior on June 19, 1918, under the terms of the Indian Appropriation Act for fiscal year 1919. The project was placed under the jurisdiction of the Bureau of Reclamation by the act of June 5, 1920. Construction began June 19, 1920, and the first water was available for the irrigation season in 1925. The Pilot Butte power plant began generation in 1922 and a second unit was installed in 1929.

The water supply for the project is obtained from the natural flow of the Wind River, supplemented by Bull Lake Reservoir.

The Midvale irrigation district began operation of irrigation facilities of the first and second division January 1, 1951, and the third division is operated by the United States with directly appropriated funds. The land of the third division during a 10-year development period will be served by water on a rental basis during which time the total water charges collected will cover operation and maintenance costs. Power facilities are operated from appropriation of the project power revenues.

The Midvale irrigation district, under the terms of their contract, will operate and maintain the joint works, including Bull Lake and Pilot Butte Reservoirs,

diversion dam, Wyoming canal, first and second divisions, as well as the distributing and drainage systems serving approximately 50,000 acres within the irrigation district. The United States will operate the Pilot Butte power plant, the Wyoming canal, third division, and the distribution and drainage system serving 18,000 acres for which water will be available in 1952, and 24,000 acres in 1953.

The United States will reimburse the irrigation district for the actual costs incurred in the delivery of water through the joint works to the Pilot Butte power plant and the third division. The United States will also furnish the district, on a reimbursable basis, an irrigation manager who is experienced in the operation of the works assumed by the district.

Power facilities include the Pilot Butte power plant with a rated capacity of 1,600 kilowatts, approximately 90 miles of 34.5-kilovolt transmission lines, several substations and metering stations, telephone system, fixed and mobile radio communication system, and the electrical facilities of the Bureau camps at Pavilion and the Pilot Butte power plant. The Bureau and the Midvale irrigation district jointly operate and maintain the Wyoming canal, first division, Wind River diversion dam, and the Pilot Butte and Bull Lake Reservoirs. For approximately 2 months each year it is necessary to clear ice at the diversion dam and power plant in order to maintain an adequate supply of water to the power plant to insure continual operation. This is an expensive procedure, but due to the shortage of power in the area, it is imperative that the Pilot Butte power plant operate continuously. The Pilot Butte power plant has a rated capacity of 1,600 kilowatts, but is operated almost continuously at 1,800 kilowatts.

Because of the necessity of maintaining a full crew for the operation of such a small power plant on a 24-hour schedule and the high cost of operating and maintaining the joint facilities the operation and maintenance expenses of the Pilot Butte power plant are much higher per kilowatt or kilowatt-hour than for the average hydroelectric power plant. Nevertheless the plant does pay for itself, assists irrigation in that irrigation would otherwise bear most of the costs of the water facilities alone if the plant did not exist and supplies vital power to an area where no adequate sources exist.

The Pilot Butte power plant cannot supply all of the power required in the Riverton area and additional energy is purchased from the Shoshone and Kendrick projects.

In addition to normal operation and maintenance expenses it has been past experience that there has been as much expense involved for improvements and force account construction work as there would be for normal operation and maintenance of a stabilized power system. Due to the rapid system changes and lack of facilities and personnel during the war years the addition of facilities which should have been made to maintain the power system at a proper level for load requirements were deferred.

The net generation of the plant during fiscal year 1951 was 12,592,386 kilowatt-hours, purchased energy was 23,058,156 kilowatt-hours, making a total of 35,650,542 kilowatt-hours. With system losses deducted, energy sales were 32,927,249 kilowatt-hours, and total revenues from power and power facilities were $201,195.97. Estimated power revenues for fiscal year 1953 and 1954 will be considerably lower due to discontinuance of the proportionate part of the Termopolis area no longer capable of being served from the Pilot Butte power plant. There will be some load growth but construction power for Missouri River Basin project's Boysen Dam will drop off in fiscal year 1952. The net result for Shoshone and Riverton projects will be an increase to Shoshone revenue and decrease in Riverton revenue.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$1,420	−$1,292
For the reimbursement of the Midvale irrigation district for the third division's share of the cost incurred by the district in the operation and maintenance of the storage system.		
Carriage system	9,640	−10,700
Of this amount, $3,000 is required to reimburse the Midvale irrigation district for the third division's share of the normal operation and maintenance of the carriage system. The balance will be required for the normal operation and maintenance by Government forces of the third division carriage works.		
Distribution system	53,360	+12,780
Continuation of normal operation and maintenance activities on the third division including 15 miles of new laterals serving 6,000 additional acres, plus weed control, riprapping, and bank stabilization.		
Drainage system	5,680	+1,612
This increased amount will be required to continue maintenance activities for the third division, due to the expanding mileage of drains.		
Replacements and improvements	8,900	+3,600
Improvement to operation and maintenance roads for new distribution system on Cottonwood Bench, including road culverts, cattle guards, and replacement of 2 trucks and 1 passenger car.		
Total obligations, irrigation	79,000	+6,000
POWER FACILITIES		
Electric generation	86,650	+1,424
For normal operation and maintenance of Pilot Butte power plant. Increase for contemplated extra maintenance which should be done, and for normal increase in costs of labor and materials.		
Other production expense		−75,000
Boysen power plant (Missouri River Basin project) will be in operation. There will not be a need for Riverton project to purchase power if the Big Horn district is integrated as 1 electric system, or if part of the present market area of Riverton project is transferred to Missouri River Basin project (Boysen power plant). Therefore, no funds are requested in fiscal year 1953 for this purpose.		
Transmission and distribution expense	16,700	+2,040
For normal operation and maintenance of transmission and distribution facilities. Amount programed is for present Riverton project system. If some part of system is transferred to Missouri River Basin project as a market area for Boysen power plant, a portion of these funds should be transferred from Riverton project which will result in a decrease of 1953 over 1952.		
Replacements and improvements	35,000	−49,974
For revamping water system at Pavilion Government camp, normal small annual replacements and improvements to Pilot Butte power plant; normal annual replacements and improvements to transmission lines and substations; improvement to patrol roads; conversion of Pilot Butte power plant to semiautomatic operation; purchase of additional pick-up truck; purchase of hot-line tools; and purchase of miscellaneous general property items.		
Subtotal, power	138,350	−121,510
Project energy interchange (net)		+75,000
Total obligations, power	138,350	−46,510
Total obligations, all facilities	217,350	−40,510

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$5,184	$2,712	$1,420
Carriage system	37,566	20,340	9,640
Distribution system	135,714	40,580	53,360
Drainage system	9,693	4,068	5,680
Replacements and improvements	218	5,300	8,900
Total obligations, irrigation	188,375	73,000	79,000
Power facilities:			
Operation and maintenance:			
Electric generation	84,278	85,226	86,650
Other production expense	95,419	75,000	
Transmission and distribution expense	8,797	14,660	16,700
Replacements and improvements	11,786	84,974	35,000
Subtotal, power	200,280	259,860	138,350
Project energy interchange (net)	−95,419	−75,000	
Total obligations, power	104,861	184,860	138,350
Total obligations, all facilities	293,236	257,860	217,350
Method of financing:			
Allotment	294,450	257,860	
Unobligated balance	−1,214		
Allotment required			217,350

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:				
Irrigable area:				
Full irrigation	Acres	54,864	71,000	95,000
Supplemental	do	2,046	2,000	2,000
Total	do	56,910	73,000	97,000
Cultivated area (total)	do	49,059	67,000	91,000
Gross crop value of project acreage.[1]	Dollars	2,086,549	2,537,000	3,257,000
Average crop value per acre	do	43	38	36
Storage dams and reservoirs	Number	2	2	2
Diversion dams	do	1	1	1
Canals	Miles	80	87	101
Laterals	do	301	335	350
Drains	do	159	176	200
Telephone lines	do	66	66	66
Operating roads	do	302	302	332
Power system:				
Annual sales	Kilowatt-hours	32,927,249	34,500,000	14,500,000
Total power revenues	Dollars	201,196	204,520	89,585
Power plants	Number	1	1	1
Plant capacity	Kilowatts	1,600	1,600	1,600
Patrol roads	Miles	56	56	56
Transmission lines	do	86	86	86
Substations	Number	4	4	4

[1] Includes entire Riverton project.

SHOSHONE PROJECT, WYOMING

Mr. KIRWAN. The next project is the Shoshone project of Wyoming. $284,350 is allotted for 1952 and the estimated requirement for fiscal year 1953 is $289,200.

Please insert into the record at this time pages 177 through 183 of the justification.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$413,877
Allotment, fiscal year 1952:		
Irrigation	$52,000	
Power	232,350	
Funds advanced by water users	3,000	
Total obligations, 1952		287,350
Allotment, fiscal year 1953:		
Irrigation	$78,000	
Power	211,200	
Funds advanced by water users	3,000	
Total obligations, 1953		292,200

JUSTIFICATION OF ESTIMATE

Location.—The project is located in Park and Big Horn Counties in northwestern Wyoming and extends a short distance into Carbon County, Mont. The principal towns are Powell, population 3,811, and Cody, population 3,860. The average elevation of the project lands is 4,500 feet.

General conditions.—The Shoshone project is one of the oldest reclamation projects, being initiated in 1904. It comprises one power division and four irrigation divisions; Garland, Frannie, Willwood, and Heart Mountain, with a total irrigable area of approximately 115 000 acres.

The Garland, Frannie, and Willwood divisions have been completed and construction repayment contracts entered into. The operation and maintenance of these divisions was transferred to the irrigation districts during 1927, 1930, and 1949, respectively. Only the Heart Mountain division is now operated by the Government. Steps are being taken to form an irrigation district as a preliminary to execution of a repayment contract and turning over to the water users the operation and maintenance of the division within the next 2 or 3 years. The contract with the Deaver irrigation district provides for the repayment of a part of the storage works with a share of power revenues, and the Shoshone irrigation district has been offered a revised contract to assume a portion of such costs and to receive in return a share of the power revenues. This was turned down but the offer is still open. The balance of the storage works costs are to be repaid from power revenues.

Water supply is obtained from the Shoshone River and storage is provided by Buffalo Bill Reservoir, the capacity of which is 439,850 acre-feet. The reservoir is formed by Buffalo Bill Dam located in Shoshone Canyon about 7 miles west of Cody, Wyo.

Power facilities of the Shoshone project include the Shoshone power plant, capacity 5,600 kilowatts, the Heart Mountain power plant, capacity 5,000 kilowatts; approximately 180 miles of 34.5-kilovolt and 69-kilovolt transmission lines; and 13 substations and switchyards. The transmission system is interconnected with the Riverton and Kendrick projects. The power division also operates and maintains several miles of telephone lines, a carrier current channel, and a fixed and mobile radio communication system. Power and irrigation jointly operate and maintain the Buffalo Bill Dam and Reservoir with associated water release valves, the headworks for the Heart Mountain power plant, and the Heart Mountain canal siphon.

The power plants are overloaded, Shoshone generating 7,000 kilowatt and Heart Mountain 6,300 kilowatt, and are difficult to maintain as it is required that they be on the line most of the time due to shortage of generating capacity in the area.

The total system energy for fiscal year 1951 was 102,778,880 kilowatt-hours,

including net generation of the two power plants, which was 99,364,080 kilowatt-hours. With system losses deducted, power disposed of was 96,310,739 kilowatt-hours, which includes some Government use. The total annual revenue for fiscal year 1951 for power and power facilities was $496,122.04.

Materials and supply stocks were depleted badly during the past war, and have not yet been brought up to necessary levels to properly operate and maintain the power system.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
IRRIGATION FACILITIES		
Storage system	$5,150	+$201
For continued operation of Buffalo Bill Dam and Reservoir and weed control in the reservoir area.		
Carriage system	20,040	+2,526
For continuation of normal operation and maintenance of cylinder gate, Shoshone Canyon conduit, and the Heart Mountain canal. Increase is due to necessity for more channel-protection work below structures and for caulking work in the Shoshone Canyon conduit.		
Distribution system	26,390	+562
For continuation of normal operation and maintenance of the Heart Mountain lateral system.		
Drainage system	5,420	+211
For normal adequate drainage maintenance.		
Replacements and improvements	24,000	+22,500
For purchase of 1 Cradall (mobile ditch cleaner) and for replacement of 2 pickups.		
Total obligations, irrigation	81,000	+26,000
POWER FACILITIES		
Electric generation	113,300	−8,298
For normal operation and maintenance of Shoshone and Heart Mountain power plants. Decrease due to Heart Mountain power plant going under supervisory control in 1953, thereby cutting number of operating personnel needed.		
Other production expenses		−26,500
For purchase of power. Boysen power plant (Missouri River Basin project) will be in operation. There will not be a need for Shoshone project to purchase power if the Big Horn district is integrated as 1 electric system, or if a part of the present market area of Shoshone project is transferred to Missouri River Basin project (Boysen power plant). No funds are being requested for this purpose.		
Transmission and distribution expense	50,700	+8,830
For normal operation and maintenance of transmission and distribution facilities. Increase to allow funds for maintenance work deferred, and part of the increase is to allow for increasing costs of labor and materials.		
Replacements and improvements	47,200	−20,782
For normal annual replacements and improvements to reservoirs, dams, and waterways; normal annual replacements and improvements to transmission lines and substations; rebuilding Shoshone-Garland-Deaver-Cowley 33-kilovolt line; modernizing Powell substation; normal annual replacements and improvements to power plants; improving patrol roads, spare transmission line, and substation materials and equipment; replace 1 passenger car and 1 pick-up truck; and purchase of miscellaneous general property items.		
Subtotal, power	211,200	−46,750
Project energy interchange (net). No interchange energy required		+25,600
Total obligations, power	211,200	−21,150
Total obligations, all facilities	292,200	+4,850

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item (1)	Total prior year, 1951 (2)	Program current year, 1952 (3)	Program budget year, 1953 (4)
Irrigation facilities:			
Operation and maintenance:			
Storage system	$6,745	$4,949	$5,150
Carriage system	34,256	17,514	20,040
Distribution system	31,618	25,828	26,390
Drainage system	3,730	5,209	5,420
Replacements and improvements	−13,973	1,500	24,000
Total obligations, irrigation	62,376	55,000	81,000
Power facilities:			
Operation and maintenance:			
Electric generation	275,562	121,598	113,300
Other production expense	15,832	26,500	
Transmission and distribution expense	29,168	41,870	50,700
Replacement and improvements	46,076	67,982	47,200
Subtotal, power	366,638	257,950	211,200
Project energy interchange (net)	−15,137	−25,600	
Total obligations, power	351,501	232,350	211,200
Total obligations, all facilities	413,877	287,350	292,200
Method of financing:			
Allotment	438,300	284,350	
Unobligated balance	−26,381		
Allotment required			289,200
Funds advanced by water users	1,958	3,000	3,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1951	Estimated	
			Fiscal year 1952	Fiscal year 1953
Irrigation system:[1]				
Irrigable areas:				
Full irrigation	Acres	98,574	99,000	99,000
Total	do	98,574	99,000	99,000
Cultivated area (total)	do	72,170	77,700	78,200
Gross crop value	Dollars	3,283,260	3,605,000	3,620,000
Average gross crop value per cultivated acre	do	45	46	46
Income to repay operation and maintenance costs	do	46,900	53,200	59,500
Storage dams and reservoirs	Number	3	3	3
Diversion dams	do	2	2	2
Canals	Miles	137	137	137
Laterals	do	329	329	329
Drains	do	311	325	341
Operating roads	do	225	225	225
Power system:				
Annual sales	Kilowatt-hours	96,310,739	116,800,000	98,350,000
Total power revenues	Dollars	496,122	601,047	500,650
Power plants	Number	2	2	2
Plant capacity	Kilowatts	10,600	10,600	10,600
Patrol roads	Miles	128	128	128
Transmission lines	do	178	178	178
Substations	Number	13	13	13

[1] Applicable to Heart Mountain division only. During early stages of project, development water rental charges are low in order to permit settlers to establish themselves. As project develops the debt is reduced on pay-out schedule to eliminate deficit before repayment contract is executed. Fiscal year 1951 funds available for obligation were $63,800.

COLORADO RIVER-FRONT WORK AND LEVEE SYSTEM, ARIZONA-CALIFORNIA-NEVADA

Mr. KIRWAN. The Colorado River front work and levee system project is to be discussed next.

The allotment for 1952 is $1,073,000 and the estimated requirements for 1953 are $1,083,450.

Please insert pages 184 through 188 of the justification into the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951		$976,627
Allotment, fiscal year 1952	$1,073,000	
Total obligations, 1952		1,073,000
Allotment, fiscal year 1953	$1,083,450	
Total obligations, 1953		1,083,450

JUSTIFICATION OF ESTIMATE

Location.—The area involved extends along the lower Colorado River Basin from Lee Ferry to the Mexican boundary, a river distance of 700 miles.

General conditions.—The act of June 28, 1946, Public Law 469, amended previous acts and authorized annual appropriations to defray the cost of (*a*) operating and maintaining the Colorado River front work and levee system in Arizona, California, and Nevada; (*b*) constructing, improving, extending, operating, and maintaining the protection and drainage works and systems along the Colorado River; (*c*) controlling said river and improving, modifying, straightening, and rectifying the channel thereof; and (*d*) conducting investigations and studies in connection therewith.

Prior to the construction of multiple-purpose dams on the lower Colorado River, levees had been constructed in the vicinity of Yuma, Ariz., and Needles, Calif., to protect agricultural and urban areas from recurring floods of the Colorado River. Flood hazards were reduced by planned operation of these dams, but river regimen was altered, and river retrogression and aggradation have occurred in different localities, introducing new drainage, flood control, and diversion problems. The work program includes the alleviation of current and anticipated river control problems, the maintenance of river control installations, and the recording of river behavior. In reaches of the river where aggradation has caused flooding of agricultural lands and the endangering of communities and transportation, it is planned to lower the water surface by improving, modifying, straightening, and rectifying the channel by dredging a new channel using the Government-owned dredge. At the intake of the Palo Verde irrigation district where retrogression has occurred, a temporary rock weir was built to raise the water surface so gravity flow is possible. Maintenance of this temporary rock weir is planned until such time as a definite solution of the problem can be accomplished.

Work proposed, 1953

	Program, 1953	Increase (+) or decrease (−) from 1952
RIVER CONTROL FACILITIES		
Operation		
River surveys and investigations	$106,666	−$72,591
For the continuation of studies of river behavior and river control problems, including routine aggradation and retrogression surveys from Davis Dam to Boundary; river-bottom investigations in connection with land use and ownership; routine stream-flow and irrigation studies; routine sedimentation and salinity studies; special surveys as required; land-use survey of federally owned lands along the lower Colorado River; surveys by Fish and Wildlife Service; wind and evaporation loss studies on Lake Mead; a cooperative survey with the U. S. Navy, Weather Bureau, and Geological Survey; preparation and publication of the Annual Report for the Office of River Control; and for supplies and expenses necessary for operating the river surveys. Decrease is due to reduction in funds required for land use survey of federally owned lands along the lower Colorado River.		
Maintenance		
Structures and improvements	69,455	+28,334
Maintenance of the Needles levee system completed fiscal year 1952 under the channelization program and the Needles levee completed in 1946, Needles operating yard, Needles housing, Palo Verde temporary weir, and emergency work as required. Increase is due to an increase in length of levees at Needles.		
Dams and waterways	807,797	+101,500
Maintenance of Cibola Pilot channel, completed channel Needles to Topock, prosecution of channelization Davis Dam to Needles, and emergency channelization as required. Increase is due to requirement to maintain the completed channel from Needles to Topock; to continue channelization Davis Dam to Needles by dredge on full-time basis for 10 months, instead of for about 9 months as in fiscal year 1952, and to provide funds for emergency channelization as may be required.		
Pumping and other equipment	----------	−1,063
Decrease is due to eliminating the need for pumping as a result of lowering of river water surface opposite Needles by completion of channel from Needles to Topock.		
Replacements and improvements	99,532	−45,730
Acquisition of 2 passenger-carrying vehicles and replacement of 6 passenger-carrying vehicles; replacement of 3 station wagons, 2 pick-up trucks, and 1 heavy-duty truck; replacement and upkeep of dredge plant and its mechanical equipment; acquisition of spare items of dredge parts, such as impeller, cutter head, pipe elbow, etc., to promptly replace worn-out items which are known will wear out during the year; acquisition of miscellaneous equipment and for major overhaul of work equipment.		
Total obligations, river control facilities	1,083,450	+10,450

Schedule of operation and maintenance program, fiscal years 1951, 1952 and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
River control facilities:			
Operation: River surveys and investigations	$37,107	$179,257	$106,666
Maintenance:			
Structures and improvements	37,059	41,121	69,455
Dams and waterways	748,086	706,297	807,797
Pumping and other equipment	1,882	1,063	----------
Replacements and improvements	152,493	145,262	99,532
Total obligations, river control facilities	976,627	1,073,000	1,083,450
Method of financing:			
Allotment	935,300	1,073,000	----------
Unobligated balance	−627	----------	----------
Transfer from construction and rehabilitation appropriation	24,956	----------	----------
Allotment required	----------	----------	1,083,450
Funds advanced by water users	16,998	----------	----------

SOIL AND MOISTURE CONSERVATION OPERATIONS

Mr. KIRWAN. The last item under "Operation and maintenance" is the soil and moisture conservation operations.

The amount allotted to this item in 1952 is $757,100 and the estimate for 1953 is $833,100.

Please insert pages 189 through 198 of the justification in the record at this point.

(The pages referred to are as follows:)

Summarized financial data

Total, fiscal year 1951	$705, 900
Allotment, fiscal year 1952	757, 100
Total obligations, 1952	757, 100
Allotment, fiscal year 1953	833, 100
Total obligations 1953	833, 100

JUSTIFICATION OF ESTIMATE

General conditions.—The soil and moisture conservation operations are authorized under the provisions of the Soil Conservation Act of April 27, 1935, and Reorganization Plan No. IV, dated April 11, 1940.

The responsibilities assigned to the Department of the Interior under the Soil Conservation Act and Reorganization Plan No. IV apply to approximately 282,000,000 acres of public land, which is about 15 percent of the total area of the continental United States. Of this total area, the Bureau of Reclamation has direct jurisdiction over approximately 15,000,000 acres located throughout the 17 Western States. The Bureau is also vitally concerned with the negotiation of cooperative work programs for protection of the watersheds above reclamation projects, reservoirs, and other structures, regardless of the ownership or control of the lands involved.

The responsibilities thus placed upon the Bureau require the application of widely varying procedures ranging from the demonstrational seeding of irrigation canal banks to cooperation in the development of plans and subsequent operations for the control of soil and water losses on an area of several million acres. These soil and moisture conservation operations are particularly important in connection with the prevention of sedimentation of reservoirs and the protection of water distribution system above reclamation projects.

The soil and moisture conservation program of the Bureau of Reclamation continues to be accomplished both through its individual effort and through effective cooperation with all other interested agencies in each of the areas concerned. The Bureau's field representatives work closely with the Bureau of Land Management, the Geological Survey, the Forest Service, and the Soil Conservation Service, as well as the soil conservation districts, irrigation districts, and other water-users organizations. Cooperative agreements have been made with each of those agencies in one or more of the Bureau's regions to insure that a definitely planned, concerted effort will be put forth in our attack on mutual problems.

Work proposed, 1953.—The requested appropriation of $833,100 is needed to finance during fiscal year 1953, a continuation of the program of soil and moisture conservation operations on public lands under the jurisdiction of the Bureau of Reclamation. The total amount requested represents an increase of only about 10 percent over the funds appropriated for this same purpose for fiscal year 1952. It will enable the Bureau of Reclamation to continue, more effectively, its efforts to conserve and protect the irrigation resources of the West.

Measures proposed for accomplishment during fiscal year 1953, in addition to continued surveys and investigations of problem areas, include revegetation of overgrazed or denuded lands; construction of check dams and water drops along with other gully-control efforts; removal of salt cedar growths; and utilization of such other soil and moisture conservation devices as needed for specific conditions.

Program items

	Program, 1953	Increase (+) or decrease (−) from 1952
OFFICE OF COMMISSIONER, WASHINGTON, D. C.		
Administration of program, supervision of allotments, and general over-all policy direction	$16,600	+$600
REGION 1		
Regional direction of program, investigations of problem areas, and continuation with Bureau of Land Management of fire-prevention measures on reclamation withdrawn lands	6,000	
Boise project	18,000	
For continuation of cooperative program with Bureau of Land Management and U. S. Forestry Service for protection of watershed lands above project.		
Columbia Basin project	12,000	
For continuation of sand dune control and sprinkler investigations.		
Mountain Home project	9,000	
For continuation of cooperative program with Bureau of Land Management for control of erosion on future project lands.		
Subtotal, region 1	45,000	
REGION 2		
Regional direction of program, including inventories and investigations of erosion problems on reclamation withdrawn lands	12,500	−500
Cachuma project	5,000	
Continued investigations and institution of erosion-control measures.		
Central Valley project	30,500	−11,000
Continuation of gully-control measures and revegetation to prevent further erosion and conserve soil and moisture resources of reservoir watershed areas.		
Klamath project	15,000	−1,000
Continuation of revegetation of public lands and operation conservation investigations tract.		
Orland project	2,000	
Revegetation of reservoir watershed areas.		
Subtotal, region 2	65,000	−12,500
REGION 3		
Colorado River Basin investigations and planning for cooperative control of erosion of watershed lands	27,000	
Boulder Canyon project	11,000	
Continuation of investigations of source and extent of flood and sediment damages to reclamation works and lands of All-American Canal system.		
Gila project	17,000	−600
Continuation of investigations of water conservation through sprinkler irrigation, and through salt cedar eradication. Protection of lands and structures.		
Salt River project	2,000	
Continuation of cooperative program with U. S. Department of Agriculture and State college in studies of water use economies.		
Yuma project	8,000	
Continuation of investigations in connection with water seepage losses in lined and unlined canals and laterals.		
Subtotal, region 3	65,000	−600
REGION 4		
Regional direction of program, including region-wide investigations of erosion problems	1,900	−15,600
Grand Valley project	12,500	−21,000
Continuation of cooperative program with Bureau of Land Management for control of erosion in Book Cliffs area, Colorado.		
Humboldt project	15,500	+6,500
Continuation of measures for conservation of water and prevention of erosion and sedimentation.		
Moon Lake project	8,000	−11,000
Continuation of measures for stabilization of channels and drainageways for protection of structures.		
Newlands project	24,000	+21,000
Installation of selected reaches of canal lining on test and demonstrational basis. Continuation of seepage studies to evaluate results.		
Provo River project	38,100	+30,100
Installation of selected reaches of canal lining on test and demonstrational basis. Continuation of seepage studies to evaluate results.		
Subtotal, region 4	100,000	+10,000

Program items—Continued

	Program, 1953	Increase (+) or decrease (−) from 1952
REGION 5		
Regional direction of program	$10,000	+$2,000
Carlsbad project	50,000	+30,000
Construction of detention dams for erosion and sediment control on Alamogordo Creek, and continuation of salt cedar elimination in Delta area of Lake McMillan.		
Rio Grande project	100,000	+28,000
Continuation for control of erosion in Picacho Arroyo for protection of canal and other Government structures; continued investigations for erosion control; and salt cedar elimination for conservation of irrigation water.		
Subtotal, region 5	160,000	+60,000
REGION 6		
Regional direction of program, including investigations and surveys of watershed areas	20,000	−12,000
Angostura unit, MRB	25,000	+23,000
Continuation of cooperative program of investigations and planning for checking erosion of watershed lands and preventing reservoir sedimentation.		
Huntley project	13,000	−10,000
Clean-up of canal lining demonstration and continuation of soil and water conservation investigations in connection with heavy, saline soils.		
Milk River and Sun River projects	9,000	
Continuation of canal lining and bank seeding on demonstrational bases.		
Riverton project	193,500	+11,00
Conservation measures for control of erosion of Five Mile and Muddy Creeks.		
Shoshone project	44,000	+2,500
Conservation measures for control of erosion of Alkali Creek; control of silt in Buffalo Bill Reservoir area; and investigations for improving heavy soils for soil and water conservation.		
Subtotal, region 6	304,500	+14,500
REGION 7		
Frenchman-Cambridge division, MRB	17,000	−8,000
Continuation of cooperative program of investigations and planning for soil and water conservation measures to be undertaken on watershed lands of the Medicine Creek Reservoir.		
Kendrick project	5,000	+2,000
Measures for reducing water losses and protection of drainages.		
North Platte project	55,000	+10,000
Cooperative program for conservation of watershed lands and water supplies and for protection of structures.		
Subtotal, region 7	77,000	+4,000
Total obligations	833,100	+76,000

Schedule of operation and maintenance program, fiscal years 1951, 1952, and 1953

Program item	Total prior year, 1951	Program current year, 1952	Program budget year, 1953
(1)	(2)	(3)	(4)
Office of Commissioner, Washington, D. C	$33,033	$16,000	$16,600
Region 1, Boise, Idaho:			
Regional		6,000	6,000
Boise project	14,225	18,000	18,000
Columbia Basin project	12,025	12,000	12,000
Mountain Home project	4,000	9,000	9,000
Subtotal, region 1	30,250	45,000	45,000
Region 2, Sacramento, Calif.:			
Regional	10,388	13,000	12,500
Cachuma project	2,500	5,000	5,000
Central Valley project	33,750	41,500	30,500
Klamath project	16,000	16,000	15,000
Orland project	2,750	2,000	2,000
Subtotal, region 2	65,388	77,500	65,000
Region 3, Boulder City, Nev.:			
Colorado River Basin investigations	16,742	27,000	27,000
Boulder Canyon project	1,339	11,000	11,000
Gila project	16,616	17,600	17,000
Salt River project	5,284	2,000	2,000
Yuma project	6,465	8,000	8,000
Subtotal, region 3	46,446	65,600	65,000
Region 4, Salt Lake City, Utah:			
Regional	21,152	17,500	1,900
Grand Valley project	29,060	33,500	12,500
Humboldt project	11,468	9,000	15,500
Moon Lake project	1,889	19,000	8,000
Newlands project	6,355	3,000	24,000
Provo River project	6,331	8,000	38,100
Subtotal, region 4	76,255	90,000	100,000
Region 5, Amarillo, Tex.:			
Regional	2,554	8,000	10,000
Carlsbad project	37,308	20,000	50,000
Rio Grande project	82,793	72,000	100,000
Subtotal, region 5	122,655	100,000	160,000
Region 6, Billings, Mont.:			
Regional		32,000	20,000
Angostura unit—MRB	1,000	2,000	25,000
Huntley project	20,465	23,000	13,000
Milk River and Sun River projects		9,000	9,000
Riverton project	236,805	182,500	193,500
Shoshone project	19,025	41,500	44,000
Subtotal, region 6	277,295	290,000	304,500
Region 7, Denver, Colo.:			
Frenchman-Cambridge division—MRB		25,000	17,000
Kendrick project	7,522	3,000	5,000
North Platte project	47,056	45,000	55,000
Subtotal, region 7	54,578	73,000	77,000
Total obligations	705,900	757,100	833,100
Method of financing:			
Allotment	746,300	757,100	
Unobligated balance	−40,400		
Allotment required			833,100

GENERAL STATEMENT

Mr. LINEWEAVER. Mr. Chairman, I have a statement on this. Soil and moisture conservation operations of the Bureau of Reclamation are particularly important in connection with the prevention of sedimentation of reservoirs and the protection of water distribution systems above reclamation projects, around which has been developed a major part of the agricultural economy of the Western States. The security of these projects and the economies developed through them will be endangered if we neglect to protect key structures, related facilities, and the reclaimed areas from preventable damage by erosion and sedimentation.

During the past 2 years, a more effective attack has been made on the soil and water loss problems that confront us, particularly through increased construction on the Five Mile and Muddy Creek above Boysen Reservoir in Wyoming and on the Rio Grande project above El Paso, Tex. In connection with this program, every effort is being made to accomplish worth-while bnefits on the ground, while holding overhead, and survey and investigations costs to a minimum.

Work in progress, mostly of a continuing nature, that we feel to be particularly noteworthy includes the program on sand-dune stabilization on the Columbia Basin project; erosion control on the lands immediately tributary to Shasta and Keswick Reservoirs of the Central Valley project through the building of minor sructures and revegetation; water-conservation investigations throughout the Southwest, with emphasis on the eradication or control of salt cedars; operations for the control of erosion in the Book Cliffs area of Colorado; completion of construction for the control of erosion in the Lucero Arroyo above the main canal of the Rio Grande project; and continued construction and revegetation operations for the control of Five Mile and Muddy Creeks in Wyoming. An instructional movie of conservation practices for water users is being completed in cooperation with the Department of Agriculture.

The soil and moisture conservation program of the Bureau continues to be accomplished both through its individual effort and through effective cooperation with all other interested agencies in each of the areas concerned. The Bureau's field representatives work closely with the Bureau of Land Management, the Geological Survey, the Forest Service, and the Soil Conservation Service, as well as with soil-conservation and irrigation districts and other water users' organizations. Cooperative agreements have been made with each of those agencies in one or more of our regions to insure that a definitely planned, concerted effort will be put forth in our attack on mutual problems.

Measures proposed for accomplishment during fiscal year 1953, in addition to continued surveys and investigations of problem areas, include revegetation of overgrazed or denuded lands; construction of retention dams; development of water-spreading structures; construction of check dams and water drops along with other gully-control efforts; removal of salt cedar growths; and utilization of such other soil and moisture conservation practices as needed for specific conditions.

General Administrative Expenses

Amounts available for obligation

	1951 actual	1952 estimate	1953 estimate
Appropriation or estimate: Reclamation fund, special fund	$6,864,000	$5,478,203	$5,500,000
Proposed transfer from "Construction and rehabilitation, Bureau of Reclamation," to meet pay increases		300,000	
Reimbursements from other accounts	30,469	15,500	16,000
Total available for obligation	6,894,469	5,793,703	5,516,000
Unobligated balance, returned to unappropriated receipts	−142,930		
Obligations incurred	6,751,539	5,793,703	5,516,000

Obligations by activities

Description	1951 actual	1952 estimate	1953 estimate
Direct obligations			
1. General administration:			
(*a*) Departmental and Denver offices	$2,913,702	$2,842,203	$2,783,000
(*b*) Regional offices	3,807,368	2,936,000	2,717,000
Total direct obligations	6,721,070	5,778,203	5,500,000
Obligations payable out of reimbursements from other accounts			
1. General administration:			
(*a*) Departmental and Denver offices	29,738	15,000	15,000
(*b*) Regional offices	731	500	1,000
Total obligations payable out of reimbursements from other accounts	30,469	15,500	16,000
Obligations incurred	6,751,539	5,793,703	5,516,000

Obligations by objects

Object classification	1951 actual	1952 estimate	1953 estimate
Summary of Personal Services			
Total number of permanent positions	$1,178	$779	$782
Full-time equivalent of all other positions	10	6	7
Average number of all employees	1,037	806	764
Average salaries and grades:			
General schedule grades:			
Average salary	$5,473	$6,544	$6,644
Average grade	GS–8.9	GS–9.6	GS–9.6
Crafts, protective and custodial grades:			
Average salary	$2,523	$2,854	$2,876
Average grade	CPC–3.2	CPC–2.9	CPC–2.9
Ungraded positions: Average salary	$3,775		
Personal service obligations:			
Permanent positions	$5,622,943	$5,024,925	$4,931,900
Part-time and temporary positions	21,274	21,998	37,290
Regular pay in excess of 52-week base		19,004	18,780
Payment above basic rates	23,954	21,141	24,430
Total personal service obligations	5,668,171	5,087,068	5,012,400
Direct Obligations			
01 Personal services	5,667,697	5,087,068	5,012,400
02 Travel	414,283	317,831	175,000
03 Transportation of things	28,038	16,546	17,000
04 Communication services	105,749	77,128	55,000
05 Rents and utility services	68,888	19,423	15,000
06 Printing and reproduction	21,696	15,860	16,000
07 Other contractual services	155,338	120,118	85,000
Services performed by other agencies	36,794	37,000	37,500
08 Supplies and materials	95,864	51,593	52,000
09 Equipment	127,593	30,965	30,000
13 Refunds, awards, and indemnities	175	2,500	2,600
15 Taxes and assessments	693	2,171	2,500
Subtotal	6,722,808	5,778,203	5,500,000
Deduct charges for quarters and subsistence	1,738		
Total direct obligations	6,721,070	5,778,203	5,500,000
Obligations payable out of reimbursements from other accounts			
01 Personal services	474		
07 Other contractual services	29,995	15,500	15,500
08 Supplies and materials			500
Total obligations payable out of reimbursements from other accounts	30,469	15,500	16,000
Obligations incurred	6,751,539	5,793,703	5,516,000

Analysis of expenditures

	1951 actual	1952 estimate	1953 estimate
Unliquidated obligations, start of year	$388,197	$541,167	$870,000
Obligations incurred during the year	6,751,539	5,793,703	5,516,000
	7,139,736	6,334,870	6,386,000
Deduct:			
Reimbursable obligations	30,469	15,500	16,000
Unliquidated obligations, end of year	541,167	870,000	825,000
Adjustment in obligations of prior years	9,835		
Total expenditures	6,558,265	5,449,370	5,545,000
Expenditures are distributed as follows:			
Out of current authorizations	6,187,001	4,653,203	4,675,000
Out of prior authorizations	371,264	541,167	825,000
Out of anticipated transfer from "Construction and rehabilitation, Bureau of Reclamation," for pay increases		255,000	45,000

Mr. KIRWAN. The next estimate for the Bureau of Reclamation is under "General administrative expenses."

The amount appropriated for this item in 1952 is $5,478,203. The estimate for 1953 is $5,500,000.

Please insert in the record at this point pages 203 through 208 of the justification.

(The pages referred to are as follows:)

General statement

1952 appropriation and increase in base salaries:	
Appropriated 1952	$5,478,203
Increase in base salaries due to pay acts	300,000
Total 1952	5,778,203
Estimate 1953	5,500,000
Increase (+) or decrease (−) 1953 estimate compared with 1952	−278,203
Appropriation act, 1952	5,478,203
Increase in base salaries due to 1952 Pay Act	300,000
Total available, 1952	5,778,203
Decreases:	
Commissioner's offices in Washington, D. C., and Denver, Colo	59,203
Regional offices	219,000
	278,203
Budget estimate, 1953	5,500,000

Analysis by activity

Activity	Adjusted appropriation	Decreases	Base 1953	Estimate 1953	Justification page reference
1. Commissioner's offices in Washington, D. C., and Denver, Colo	$2,842,203	$59,203	$2,783,000	$2,783,000	203
2. Regional offices	2,936,000	219,000	2,717,000	2,717,000	203
Total	5,778,203	278,203	5,500,000	5,500,000	

The Congress appropriated $5,478,203 for "General administrative expenses" in 1952. In addition, it is proposed to transfer $300,000 to this appropriation from unobligated funds in the "Construction and rehabilitation" appropriation account to defray part of the cost of the pay increase authorized by Public Law 201. While $300,000 is the amount proposed to transfer for pay raise purposes, the estimated cost of such pay raise for 1952 is $407,230, making it necessary to absorb $107,230.

The Bureau is requesting an appropriation of $5,500,000 for fiscal year 1953. Assuming the proposed transfer of funds for fiscal year 1952 is approved, this will result in a reduction of $278,203 below the funds made available in fiscal year 1952. Reduction in personnel through natural attrition will tend to balance the reduction in the appropriation. This will be accomplished by limiting the filling of vacancies to an essential minimum.

The total obligation program for fiscal year 1953 is only $3.4 million or 1.5 percent less than the program for 1952. The reduction of $278,203 or 5 percent in the "General administrative expenses" appropriation request is greater than the reduction in the over-all Bureau program. The amount of $5,500,000 requested is the bare minimum with which the Bureau can hope to administer adequately its far-flung and intricate programs.

The administrative workload of the Bureau financed by this appropriation will not decrease in fiscal year 1953 even though there is a slight reduction in the program. Supervision of the advance planning and project investigations programs during this period of curtailment of new construction, the steadily growing operation and maintenance program, the necessity for working out problems with defense agencies in connection with public power and irrigation programs all are factors tending to increase the burden of work in Bureau offices. The administration of limitations in the appropriation acts such as those included in the bill for 1952 create administrative problems and paper work which must be borne in large measure by this appropriation. Even the reduction in the construction programs raise additional administrative problems concerned with the completion of work, assignment of employees to the operation and maintenance activity, the preparation of completion reports and similar duties. The limited funds in 1953 for this appropriation will require constant care in planning and the adoption of specialized techniques to enable the Bureau to successfully discharge its executive and administrative responsibilities.

This appropriation finances the general administrative activities of the Washington office, the regional offices and the Commissioner's office in Denver. On our own initiative and concurrently in compliance with instructions from the Appropriation Committees and the Secretary of the Interior, the Bureau has its organization under continuous examination to discern those areas subject to possible adjustment by reason of varying workload or efficiency. The estimate for fiscal year 1953 has been prepared on the basis of present estimated requirements. It may be necessary, however, during the fiscal year to make adjustments to meet changing conditions.

The following tabulation shows allotments for fiscal years 1952 and 1953, for Washington, Denver, and regional offices financed by this appropriation:

	Fiscal year 1952	Fiscal year 1953
Washington office	$2,048,578	$2,048,600
Region 1	475,100	439,700
Region 2	414,200	383,300
Region 3	412,600	381,800
Region 4	358,000	331,300
Region 5	419,400	388,100
Region 6	432,500	400,200
Region 7	424,200	392,600
Total regional offices	2,936,000	2,717,000
Commissioner's office, Denver	793,625	734,400
Grand total	5,778,203	5,500,000

1. *Commissioner's offices in Washington, D. C., and Denver, Colo., office.*—Of the total estimate of $5,500,000 for "General administrative expenses," $2,048,000 will be allocated to the Washington office. The Washington office is scheduled at its 1952 level to meet the continuing responsibility of administering the Bureau's widespread activities in the Western States. No decrease in those responsibilities is anticipated in fiscal year 1953.

In addition to the technical responsibilities carried by the Washington office, all units share the responsibility of serving higher authorities, preparing numerous special and recurring reports; answering congressional mail and telephone inquiries; and attending conferences concerned with their work, not only in Washington but in the field as well. The defense program imposes additional burdens in terms of many hours of conferences and visits to defense agencies, concerned with priorities, labor rates, transportation, and funds to meet the defense needs of reclamation.

Commissioner's offices in Denver.—The allocation of $734,400 to the Commissioner's offices in Denver represents a decrease of $59,225 from the current year's allocation. Here, as in other areas of the Bureau's administrative operations, a majority of the functions and responsibilities remain fairly constant despite temporary fluctuations in the size and scope of the programs. While the greater portion of the work performed in the Denver office is of a project-type work, that is, work for a specific project or activity for which appropriations are provided, certain functions and activities in the Branch of Design and Construction and other offices of the Commissioner quartered in Denver such as the office of the

Comptroller, are those of the Commissioner's immediate staff and come within the scope of "General administrative expenses."

2. *Regional offices.*—Allocation to regional offices total $2,717,000 for fiscal year 1952. This is a decrease of $218,000 as compared with this year's allocations. While the physical operations of the program will shrink, the needs for reprograming and rescheduling of work under way will partially offset this reduction.

The increase in complexity of the Bureau's program since World War II has developed an involved interrelationship between features, projects, basins, and even regions. Experience has shown the Bureau that planning and execution of work by project and program personnel can not be directly supervised from Washington but must be administered by offices close to the site of operations. Regional offices provide that facility. The integration of the project segments into a real and effective reclamation program first by regions and then for the Bureau as a whole, requires the service of a staff schooled to understand the needs of western development as authorized by the Congress, and familiar with the problems in their particular locality. The necessity of detailed acquaintance with the area, of prompt decision, of local presence—all these factors make it essential that regional offices be continued at levels that will permit them to function efficiently.

The Bureau's estimate for regional offices represents the minimum amount required under the attendant conditions to meet the 1953 workload of its offices.

GENERAL STATEMENT

Mr. LINEWEAVER. The "General administrative expense" appropriation of the Bureau of Reclamation finances the operations of the Commissioner's office in Washington and in Denver, and that part of the activities of the 7 regional offices that are nonproject in character. Authority for the appropriation rests in subsection O of the act of December 5, 1924, as amended by the act of April 25, 1945 (43 U. S. C. A. 377).

ADMINISTRATIVE WORK OF BUREAU

The administrative work of the Bureau of Reclamation is conducted through the backbone organization financed through this appropriation and does not fluctuate directly with the workload at the site of the work. The slowing down or speeding up of the construction program affects chiefly the project appropriations. Many administrative problems develop with the suspension of construction programs. The planning of the work for future years is entirely unrelated to current workloads or payments to contractors on going jobs. Operation and maintenance is an expanding program. This appropriation for general supervision of the Bureau's activities cannot be related on a percentage basis, to the Bureau's total program in any one year.

REQUEST FOR 1953

For the fiscal year 1953 the amount requested is $278,203 less than the amount appropriated for 1952, including a proposed supplemental of $300,000 to finance the recent pay increase. There is attached a tabulation showing the positions financed from this appropriation for fiscal year 1952 and the proposed positions for 1953. The few additional positions for fiscal year 1953 arise from normal turn-over with replacement of vacancies in the higher grades by more than one lower grade position. No substantial change in the Bureau's organization finance by this appropriation is contemplated for the fiscal year 1953.

(The tabulation referred to is as follows:)

Positions financed from appropriation

	Fiscal year 1952		Fiscal year 1953	
	Number of positions	Man-years	Number of positions	Man-years
Washington office	[1] 324	313	[1] 327	314
Commissioner's office, Denver	89	85	91	92
Regional offices	366	408	364	358
Total	[1] 779	806	782	764

[1] Does not include 10 positions financed by transfer of funds from other Federal agencies and foreign governments for foreign activities.

PROGRESS IN REDUCING ADMINISTRATIVE COSTS

Mr. KIRWAN. What progress has been made in reducing administrative costs?

Mr. LINEWEAVER. I will submit this chart in response to that question. You will recall that the reduction in personnel throughout the Bureau from 19,000 to 14,000 has already been explained to the committee.

REDUCTION OF ADMINISTRATIVE PERSONNEL

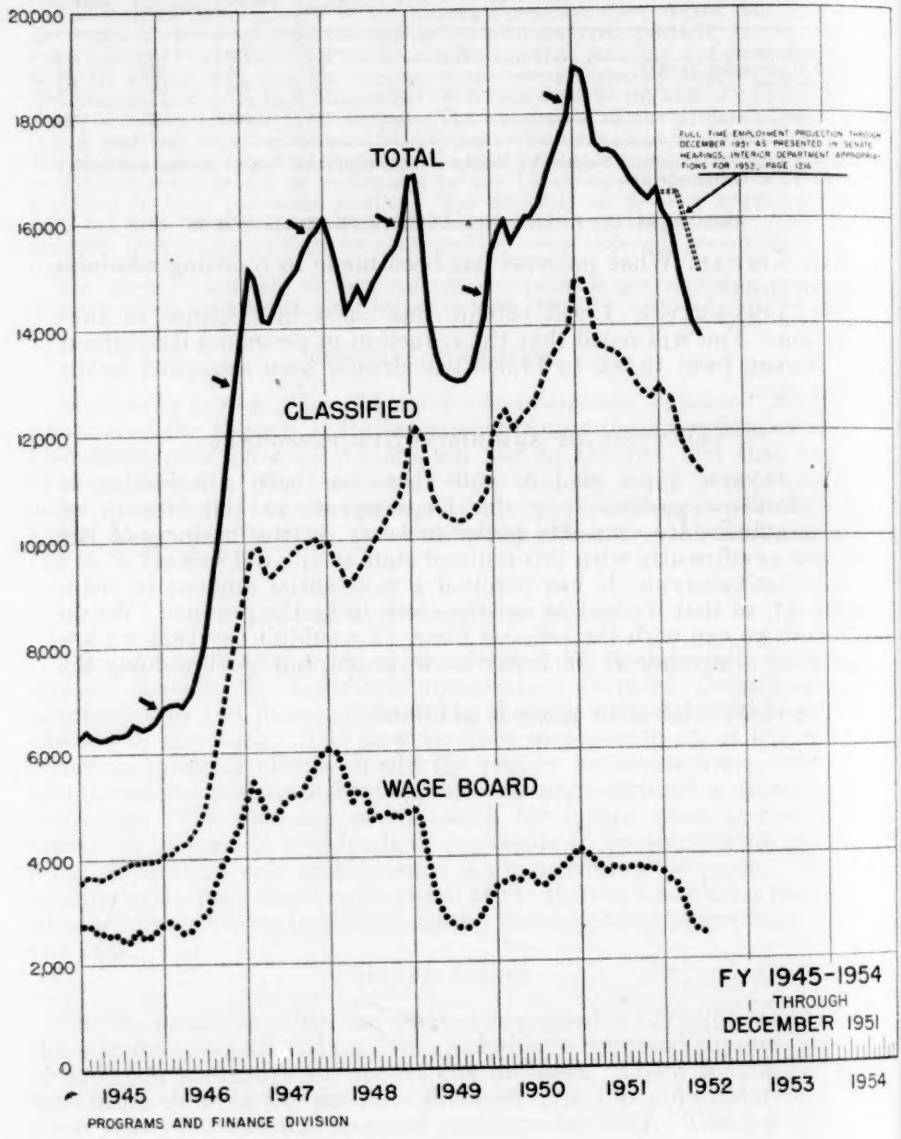
Mr. JENSEN. I am glad to note there has been a reduction in administrative personnel in the Department, in the Bureau of Reclamation. Are you able today to carry on the business of the Bureau as efficiently with this reduced staff as you did before?

Mr. LINEWEAVER. It has required a substantial amount of readjustment, so that we had to cut the cloth to fit the pattern. We do the best we can with the reduced force. I wouldn't say that we are operating altogether as efficiently as we could, but we are doing the best we can.

(The chart referred to above is as follows:)

FULL TIME EMPLOYMENT

BUREAU TOTAL



PROGRAMS AND FINANCE DIVISION

Emergency Fund

Amounts available for obligation

	1951 actual	1952 estimate	1953 estimate
Appropriation or estimate, reclamation fund, special fund		$400,000	$400,000
Prior year balance available	$774,711	353,510	
Total available for obligation	774,711	753,510	400,000
Balance available in subsequent year	−353,510		
Obligations incurred	421,201	753,510	400,000

Obligations by activities

Description	1951 actual	1952 estimate	1953 estimate
1. Grand Valley project, Colorado	$300		
2. Boise project, Idaho		$500,000	
3. Milk River project, Montana		35,000	
4. Mirage Flats project, Nebraska		15,000	
5. Rio Grande project, New Mexico-Texas	163,101		
6. Owyhee project, Oregon-Idaho	4,800		
7. Kendrick project, Wyoming	253,000		
8. Funds available for emergencies		203,510	$400,000
Obligations incurred	421,201	753,510	400,000

Obligations by objects

Object classification	1951 actual	1952 estimate	1953 estimate
07 Other contractual services	$2,800		
08 Supplies and materials	163,101		
10 Lands and structures	253,300	$550,000	
13 Refunds, awards, and indemnities	2,000		
Funds available for emergencies		203,510	$400,000
Obligations incurred	421,201	753,510	400,000

Analysis of expenditures

	1951 actual	1952 estimate	1953 estimate
Unliquidated obligations, start of year	$3,149	$25,435	$115,000
Obligations incurred during the year	421,201	753,510	400,000
Total	424,350	778,945	515,000
Deduct unliquidated obligations, end of year	25,435	115,000	60,000
Total expenditures	398,915	663,945	455,000
Expenditures are distributed as follows:			
Out of current authorizations	398,915	285,000	340,000
Out of prior authorizations		378,945	115,000

Mr. Kirwan. The next item for the Bureau of Reclamation is the "Emergency fund, irrigation and power systems."

The appropriation to this fund for 1952 is $400,000 and the estimate for 1953 is $400,000.

Please insert in the record at this point pages 216 through 220 and explain the justification.

(The pages referred to are as follows:)

94303—52—pt. 3——32

Estimate of Appropriation, Fiscal Year 1953, $400,000

JUSTIFICATION OF ESTIMATE

Authorization

The emergency fund was authorized by Public Law 790, dated June 26, 1948, for the purpose of providing a source from which prompt relief could be provided in cases of damage to project facilities.

Justification

An appropriation of $400,000 is requested in order to insure the continued availability of adequate funds with which to meet emergencies arising on Bureau of Reclamation projects during fiscal year 1953.

The First Deficiency Appropriation Act of 1949, dated May 24, 1949, provided an initial appropriation of $1,000,000 for use as required under the authorizing legislation. Since that time the fund has been extensively used for relief in a variety of emergencies. To meet these continued emergencies the Congress appropriated an additional $400,000 in the Interior Department Appropriation Act, 1952, Public Law 136, dated August 31, 1951.

Since the establishment of the emergency fund it has become necessary to draw on this fund for 20 emergencies involving 10 projects in the amount of $1,212,056. As of December 31, 1951, the unallotted balance is $187,944. On the basis of past requirements and probable future needs it is anticipated that this fund will be exhausted by the close of fiscal year 1952. The currently rapid transition of projects from construction to an operation and maintenance stage is increasing the potential requirements for emergency work.

A summary statement by project of the emergencies which have required allotments from the emergency fund follow.

Belle Fourche, South Dakota, $25,193.—For replacement of damages head gates the cost of which has been included in amendatory repayment contract.

Boise project, Idaho, $500,000.—For repair of Black Canyon Dam and spillway weakened by successive erosion and undercutting of spillway. Negotiations are currently under way with the water users looking toward a repayment contract to return that part of the cost charged to irrigation. The remainder of the cost of this emergency work will be repaid from power revenues.

Grand Valley project, Colorado, $23,695.—For making temporary repairs caused by a landslide at tunnel No. 3 on the High Line Canal. The cost of the temporary repairs will be repaid by the water users association under terms of an amendatory contract.

Kendrick project, Wyoming, $253,000.—For emergency repairs to the tailrace and channel below Seminoe Dam and access road caused by excessive spring flood water, the cost of which will be added to the existing pay-out schedule payable from power revenues.

Milk River project, Montana, $69,600.—For emergency repair of Spider Coulee and Vandalia flumes the cost of which has been included in an amendatory repayment contract.

Mirage Flats, Nebraska, $15,000.—For repairs to the main canal to restore water service to the farmers. Repayment of this amount is provided for under an existing repayment contract with the water users.

Owyhee project, Oregon-Idaho, $4,825.—For repairing break in the South Main Canal and for rehabilitation of the damaged area. The cost of this work was repaid with the regular operation and maintenance assessment for the year.

Rio Grande project, New Mexico-Texas, $172,352.—For emergency repair of gates and spillway at Elephant Butte Dam made necessary by a severe winter and ensuing flood, and for emergency purchase of power for resale in order to keep commitments to power customers following unforeseen water shortages. The cost of these items will be repaid from power revenues.

Riverton project, Wyoming, $143,391.—For replacing washed-out drop and turnout and two large chutes on the Pilot Canal caused by undermining and winter deterioration. Amendatory contracts with water users have been executed which provide for the repayment of costs incurred for this work.

Yakima project, Washington, $5,000.—For emergency work on the power plant occasioned by an extremely long and cold winter whereby anchorice formed in the power canal. The cost of this work will be repaid from power revenues.

A table showing the status of the emergency fund as of December 31, 1950, follows.

Status of emergency funds as at Dec. 31, 1951

Appropriations:	
First Deficiency Appropriation Act, 1949	$1,000,000
Interior Department Appropriation Act, 1952	400,000
Total appropriation as of Dec. 31, 1951	1,400,000

Status of allotments

Project	Allotment advice number	Date	Allotments	Net allocation
Belle Fourche	1	Oct. 3, 1949	$80,000	
	2	May 19, 1950	−54,807	
				$25,193
Boise	1	Dec. 4, 1951	500,000	
				500,000
Grand Valley	1	Feb. 13, 1950	50,000	
	2	Apr. 25, 1951	−26,305	
				23,695
Kendrick	1	July 14, 1950	253,000	
				253,000
Milk River	1	Nov. 10, 1949	25,000	
	2	Oct. 4, 1951	35,000	
		Dec. 29, 1951	9,600	
				69,600
Mirage Flats	1	Aug. 3, 1951	15,000	
				15,000
Owyhee	1	June 27, 1951	4,825	
				4,825
Rio Grande	1	June 20, 1949	50,000	
	2	Apr. 13, 1950	−46,648	
	3	Sept. 16, 1950	84,000	
	4	Jan. 3, 1951	55,000	
Power and storage division	5	June 7, 1951	30,000	
				172,352
Riverton	1	June 23, 1949	11,500	
	2	Sept. 16, 1949	150,000	
	3	Aug. 31, 1950	−17,945	
	4	Apr. 26, 1951	−164	
				143,391
Yakima	1	Apr. 24, 1950	5,000	
				5,000
Subtotal				1,212,056
Unallotted available funds				187,944
Total appropriation as of Dec. 31, 1951				1,400,000

GENERAL STATEMENT

Mr. LINEWEAVER. An appropriation of $400,000 is requested for fiscal year 1953 in order to insure the continued availability of adequate funds to meet unforeseen emergencies on Bureau of Reclamation projects.

The currently rapid transition of projects from construction to an operation and maintenance stage has increased the potential requirements of emergency work.

USE OF THE EMERGENCY FUND

Since the establishment of the emergency fund in 1948, $1,400,000 has been made available—$1,000,000 in the First Deficiency Appropriation Act of 1949 and $400,000 in the Interior Department Appropriation Act of 1952. As of December 1951 it has become necessary to draw on this fund in the amount of $1,212,056 for a variety of emergencies in 10 projects, leaving an unallotted balance of $187,944. On the basis of past requirements and possible future needs it is anticipated that this fund will be virtually exhausted by the close of fiscal year 1952.

ALLOTMENTS AND OBLIGATIONS BY PROJECTS

Allotments from the emergency fund by projects, together with the obligations incurred against such allotments through December 31, 1951, are presented on the table, which I will submit for the record.

(The table referred to is as follows:)

Emergency fund—Status of allotments and obligations as of Dec. 31, 1951

Projects	Allotments	Obligations	Unobligated balance
Belle Fourche	$25,193	$25,193	
Boise	500,000	393,216	$106,784
Grand Valley	23,695	23,677	18
Kendrick	253,000	253,000	
Milk River	69,600	50,786	18,814
Mirage Flats	15,000	8,942	6,058
Owyhee	4,825	4,825	
Rio Grande	172,352	166,429	5,923
Riverton	143,391	143,391	
Yakima	5,000	5,000	
Subtotal, allotments issued	1,212,056	1,074,459	137,597
Unallotted balance	187,944		187,944
Total	1,400,000	1,074,459	325,541

Mr. LINEWEAVER. Mr. Chairman, we are ready to answer any questions.

USE OF FUND IN 1952

Mr. KIRWAN. How much of the fund has been used in 1952?

Mr. GOLZÉ. Through the present time, $1,212,056 has been allotted out of the emergency fund.

Mr. KIRWAN. What have been the principal reasons for having to use the fund this year?

Mr. GOLZÉ. The principal allotment made this year has been on the Black Canyon Dam, on the Boise project, a structure 25 years old, where there has been serious erosion under the spillway.

WEALTH CREATED BY RECLAMATION

Mr. LINEWEAVER. Last summer, when you and I were at Tracy pumping plant in California, you made a remark about the wealth created by Federal reclamation. You asked me to have a study made of that, and I have a fairly concise statement of that, which I request permission to present.

The first is with respect to wealth created by reclamation, which I will read:

June 2, 1952, marks Reclamation's fiftieth birthday. During the half-century that has passed, a little over $2,542 million of appropriated funds will have been expended for all reclamation purposes. In terms of current expenditures, this very significant sum of money would be enough to run the Department of Defense on the basis of its 1952 budget for a little less than 15 days, or enough to run the Veterans' Administration for about 7 months.

In safeguarding public funds, the Congress 50 years ago required that moneys appropriated for reclamation construction should be returned to the Treasury by those benefiting from project construc-

tion. Pursuant to this requirement, repayment contracts and pay-out schedules are in force through which virtually all of the expended funds will return to the Treasury. By the end of this current fiscal year this process will have been materially advanced even though many of the project features now under construction and making up over 50 percent of all costs have not reached their potential repayment rate. By June 30, 1952, power will have repaid nearly $332 million and irrigation approximately $98 million in the retirement of capital costs and upwards of $150 million of operation and maintenance funds. The total amount outstanding is around $2 billion.

The real contribution of reclamation, however, is measured in terms of—

(*a*) Over 100,000 prosperous family-sized farms which were reclaimed from western desert and made fertile through conserved and controlled water. These farms embrace over 6¼ million irrigable acres to which either supplemental or full water service has been extended through Bureau-built works.

(*b*) The production of essential foods and fibers with cumulative value of over $7.8 billion which have been grown on projects provided full or supplemental water by the Bureau of Reclamation. In 1950, the gross crop value was $578,238,000 and the $654,020,000 preliminary estimates for the 1951 crop marks the first time in Reclamation's history the value of an annual crop has exceeded $600 million, and the sixth consecutive year of annual crops valued in excess of one-half billion dollars.

(*c*) Hundreds of thriving towns, villages, and cities located on the projects or adjacent to them having a combined population of nearly 1¾ million and directly serving the needs of reclamation areas. Hundreds of other towns and cities throughout the rest of the Nation derive benefit from the basic wealth created through reclamation.

(*d*) Nearly all of the apricots, almonds, lemons, dates, figs, prunes, and olives; over 90 percent of the grapes, sweet cherries, and lettuce; over 75 percent of the avocados, pears, and cantaloups; and over half of the peaches, choice winter vegetables, and other protective foods which come almost exclusively from the irrigated West and much of which is grown with water developed under the Federal reclamation program.

(*e*) The essential feed and forage required to balance and make possible the efficient use of over 700 million acres of western range, a major part of which is seasonal in nature and not usable except in connection with the irrigated feed base. Reclamation projects alone produced over 4.6 million tons of hay and forage and 56 million bushels of grain during 1950.

(*f*) Retail trade through which the goods and services of the entire Nation are brought to those who live on reclamation projects. The household appliances, automotive equipment, textiles, shoes, tobacco, periodicals, and thousands of other assorted requirements of modern life which are produced throughout the United States are consumed by project residents at a rate in excess of $1,100 per person per year. Retail sales in the 17 Western States during 1950 aggregated over $36.8 billion or over three times the Nation's exports.

(*g*) Federal taxes paid by the beneficiaries of reclamation projects are now estimated to aggregate well over $2.5 billion or equal the combined expenditures for all reclamation features. Many of the

great projects included in the cost such as the Central Valley project in California, the Colorado-Big Thompson project in Colorado, and the Columbia Basin project in Washington are just coming into production and the influence of these projects on tax receipts will not be fully felt for many years.

(*h*) Hydroelectric generating capacity with a name-plate rating of nearly 4.3 million kilowatts which last year alone produced 21.5 billion kilowatt-hours of hydroelectric energy badly needed to muscle the Nation's defense effort and contributed to a higher living standard as well. The full contribution of hydroelectric power generated at Grand Coulee and Hoover Dams in the war effort remains unappraised, but the aluminum and airplane production made possible by these and other Bureau installations completely revamped western industry and helped the Nation reach unprecedented levels of production.

(*i*) A continuously increasing supply of municipal and industrial water which is being made available to segments of the rapidly increasing population of the 17 Western States.

(*j*) Control of runoff in the interest of preventing or mitigating flood damage.

(*k*) Fish and wildlife, recreation, salinity repulsion, navigation, and a host of other associated services provided through multiple-purpose development.

(*l*) Accumulated technical know-how mastered on reclamation projects which is now being disseminated throughout the world in an effort to improve living standards of the world's people as a part of a program of better international understanding.

The $2½ billion expended in reclamation construction has helped the Nation attain new economic horizons. This $2½ billion, of which nearly $700 million was accumulated from the sale of western lands and oil and gas leases, has been demonstrated to be a prudent national investment. It has produced great new wealth which translates into diversified and decentralized industry, high educational attainments, a strong and healthy population, high levels of public service, and in the great essentials of an economically healthy and internally strong America.

FEDERAL RECLAMATION IN WESTERN DEVELOPMENT

Mr. LINEWEAVER. The second statement is with respect to Federal reclamation in western development.

Since the first reclamation project was completed in 1906, the importance of Federal irrigation in western development has constantly increased. By 1909, 2.9 percent of the total irrigated land in the 16 Western States was irrigated through federally built works. This percentage increased to 11.3 in 1919, 14.4 in 1929, 15.5 in 1939, and 19.6 in 1949.

The importance of Federal reclamation in the case of individual States is of materially greater significance. For the 1949 crop year, in Idaho, for example, 1,309,056 acres of 2,165,600 acres were provided with either a full or supplemental irrigation water supply through federally built works. This amounts to 60.4 percent of the total. The highest individual percentage was in Oklahoma where 81.7 percent of the total irrigation is through federally built works.

In Arizona, the percentage was 37.5, in Nebraska 31.7, in North Dakota 66.5, in South Dakota 69.6, and in Washington 60.5.

The future economic prosperity of the Nation is contingent upon the orderly conservation and use of western resources. Significantly, the easy projects have been built almost entirely by private capital. Some of the more complex projects are being built by the Bureau of Reclamation and the majority of the projects still needed to unlock the almost limitless wealth of the West must be constructed through Federal reclamation because of interstate complications and the cost involved.

The importance of western irrigation is demonstrated in current production figures. The 11 Mountain and Pacific States alone produced virtually all of the Nation's apricots, almonds, dates, lemons, figs, prunes, and olives, nearly 95 percent of the grapes, over 90 percent of the lettuce and sweet cherries, 75 percent of the avocados, pears, and cantaloups, over 55 percent of the peaches, and nearly one-half of the commercial truck crops. Many of these crops are classed by our dietitians as protective foods and many of them come almost exclusively from irrigated land. You see the benefits of irrigation every time you shop and, in fact, almost every time you eat a meal.

The contribution of irrigation in maintaining adequate dietary standards is further supported by 1949 crop production figures which indicate that 25.3 percent of the acreage producing truck crops was irrigated. This acreage produced 38.9 percent of the tonnage of the truck crops and over 45 percent of the total value of truck crops. The greater unit production of high-quality produce grown under irrigation is significant at this time when the greatest efficiency in crop production is mandatory in terms of the Nation's defense effort.

Of equal significance with fresh fruit and vegetable production, although not as readily apparent, is the contribution made by irrigation to the balanced and conservative use of the vast western range. Around 85 percent of the alfalfa acreage is irrigated and produces over 90 percent of the crop. Dry-farmed hay is restricted to the more humid valleys where yields are generally lower than those attained under irrigation. The irrigation feed base made up of alfalfa, irrigated pasture, grains, and crop residues makes millions of acres of high quality seasonal range usable in producing livestock and livestock products, which are now in critically short supply. Reclamation projects in the 17 Western States in 1950 produced 4,647,673 tons of hay and forage to account for nearly 29 percent of reclamation's total tonnage. The value of hay and forage was $99,755,870, or 17 percent of the total value of all crops.

The cash receipts from farm marketings in the 17 Western States for the 1949 crop year (last year for which complete reports are available) was $10,592.4 million. Of this, $5,698.8 million came from crop sales and $4,893.6 million came from livestock and livestock products. The latter figure obviously includes feed and forage grown in the Western States but marketed through livestock rather than as a primary cash crop. The contribution of Federal reclamation in this field is typified by traditional crop plantings on reclamation projects which reveal upward of two-thirds of the total acreage being devoted to feed and forage crops which, because of local utilization, are generally noncompetitive with the agriculture in other sections of the United States.

Figures on Federal and total irrigation are presented on the two tables which I will submit for the record.

(The tables referred to are as follows:)

Federal and total irrigated area comparison, 16 Western States, 1949

State	Federal reclamation	Total irrigation in West	Percent Federal
Arizona	362,335	966,580	37.5
California	817,956	6,607,646	12.4
Colorado	149,484	2,928,248	5.1
Idaho	1,309,056	2,165,600	60.4
Montana	250,662	1,813,698	13.8
Nebraska	280,619	885,089	31.7
Nevada	100,340	722,942	13.9
New Mexico	135,199	686,346	19.7
North Dakota	23,763	35,759	66.5
Oklahoma	35,841	43,889	81.7
Oregon	386,304	1,342,349	28.8
South Dakota	57,142	82,103	69.6
Texas	92,058	3,129,774	2.9
Utah	278,188	1,163,689	23.9
Washington	368,654	609,035	60.5
Wyoming	172,988	1,461,712	11.8
Total	4,820,589	24,644,439	19.6

Source: Total figures, preliminary release, Census of Irrigation, Federal Reclamation, U. S. Bureau of Reclamation.

The growing importance of Federal reclamation in total irrigation in the 16 Western States [1]

Crop year	Total acres irrigated	Acres served by Bureau-constructed works	Percent Federal of total
1909	13,987,853	410,628	2.9
1919	18,545,576	2,103,568	11.3
1929	18,873,566	2,718,130	14.4
1939	20,295,063	3,140,976	15.5
1949	24,644,439	4,820,589	19.6

[1] Kansas not used in comparisons.

Source: Bureau of the Census and Bureau of Reclamation crop census reports.

ACCOMPLISHMENTS IN PAST 50 YEARS

Mr. KIRWAN. I want to say now, at the beginning of your golden jubilee, that you are stronger starting out now than you were 50 years ago. If you continue to do as well in the next 50 years as you did in the past, you will reclaim a lot of America that has been destroyed for 300 years. I hope you will continue to reclaim us.

In my own State there are probably a million acres of farm land that are suffering from lack of water. We know that in Ohio or in any State you cannot have a perfect drainage system along the highway. If you have that, which helps make good roads, you are going to be short of water.

There is not going to be any water for the farm because 5 minutes after the rain falls—God lets it fall—it is on its way into the ocean and it doesn't do the job it should do. So we must determine in the next couple of years how we can continue to have good roads and at the same time have sufficient water. It will be part of your job in the

Bureau of Reclamation to find out what is the easiest and best method to have them both. But you cannot have them both now.

I hope that you continue to do the job next year as you have done in the past years.

I am happy to have had you with us.

Mr. LINEWEAVER. We are glad to have been here, Mr. Chairman. We express our appreciation on behalf of Commissioner Straus and the members of the staff here for the patience you have shown us in the 2 or 3 days of the hearing. It has been a pleasant experience and the attitude of the committee, Mr. Chairman, especially yourself, has been helpful. We have tried our best to answer any questions. If we have not had the answers, we will get them.

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